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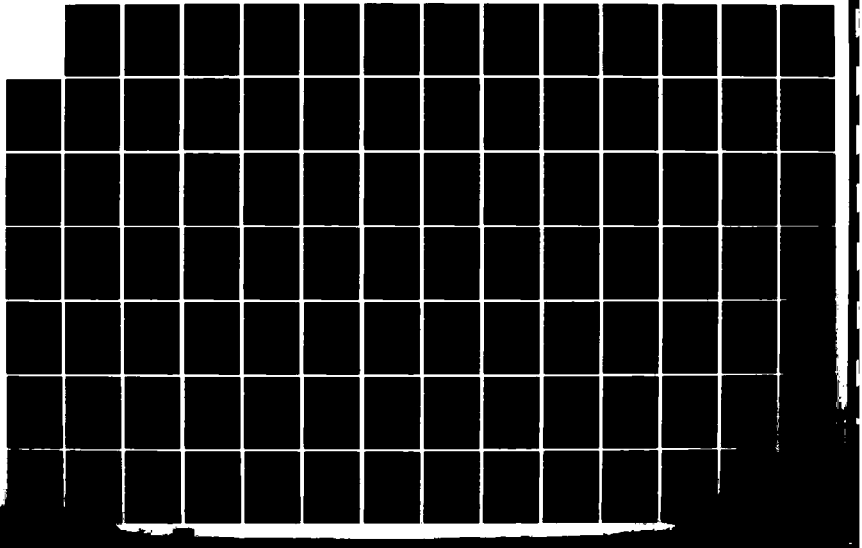

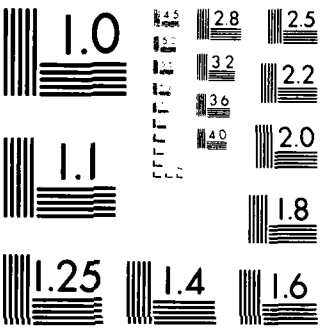

Final Report No.18

December 10, 1984

An Archeological Overview and Management Plan for the Red River Army Depot, Bowie County, Texas

Under Contract CX-5000-3-0771
with the

National Park Service
U.S. Department of the Interior
Atlanta, Georgia 30303

for the
U.S. Army Materiel Development and Readiness Command

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16. Abstract (Limit: 200 words)

The Red River Army Depot is located in Bowie County, northeast Texas, and contains just over 19,000 acres. As an installation of the U. S. Army DARCOM command, the Depot is a steward of public lands with the responsibility for the management of all cultural resources on its property. A review of existing data concerning the physical setting and the cultural environment of the area, including previous archeological investigations, has revealed that the facility contains known prehistoric cultural resources (two sites) and has a very high potential for presently unrecorded historic sites (239 potential historic resources). Archival research has documented the presence of numerous farmsteads and several cemeteries on the Depot property. For general compliance with the National Historic Preservation Act and Army Regulation AR 420-40, and in order to assure that the Depot's on-going silviculture program and the proposed future oil and gas exploration leasing and facility expansion are in compliance with Section 106 of that Act, it is recommended that the Red River Army Depot develop a facility Historic Preservation Plan as a long-term goal. Such a plan should be based on a field inventory of the archeological resources retained on the facility. The cost of such an inventory and evaluation program is presented in this report.

17. Document Analysis a. Descriptors

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Army Installation Management
Environmental Assessment

reference: Thesaurus of Engineering and Scientific Terms

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Cultural Resources Management
Northeast Texas Prehistory
Northeast Texas History
Northeast Texas Paleoenvironments

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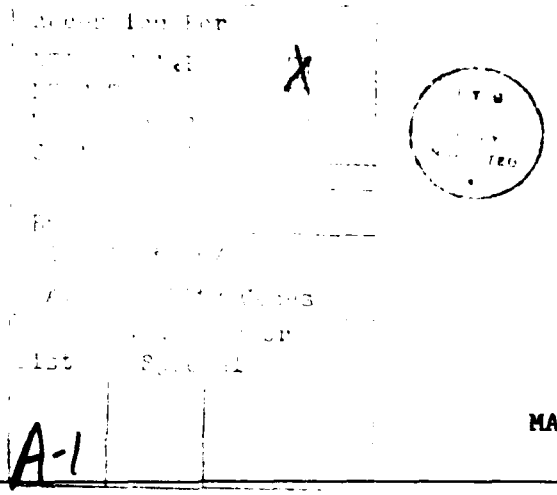

MANAGEMENT SUMMARY

The Red River Army Depot is a DARCOM facility (Department of the Army Materiel Development and Readiness Command) with responsibilities for the management of prehistoric and historic archeological resources on its lands. This report is a summary of the cultural and environmental history of the area that provides a context for the interpretation and evaluation of facility archeological resources. It also provides an assessment of the total archeological resources base likely to exist on installatin lands and recommendaions for future management of these resources within the overall context of DARCOM missions, federal legislation, and public responsibilities.

The Red River Army Depot is located in approximately 15 miles west of Texarkana in northeast Texas, and contains slightly over 19,000 acres. It is a Class II Government-Owned, Contractor-Operated (GOCO) Military Industrial Installation. Depot functions include munitions storage, production, and supply.

There has been one previous cultural resources survey on the facility that identified two prehistoric archeological sites. Subsequent archival research has revealed 239 potential historic sites within facility boundaries. Land surfaces at the Depot are of sufficient age to contain cultural remains of Paleo-Indian age and the potential is high for finding prehistoric resources dating to this and more recent time periods. Limiting factors to site preservation in the uplands include the absence of a depositional environment, combined with erosion/deflation and such modern land use practices as silviculture, plowing, and facility construction.

Compliance with the National Historic Preservation Act, the Archeological and Historic Preservation Act, 36 CFR 800, and Army Regulation AR 420-40 requires the identification, evaluation, and where feasible, the affirmative management of significant archeological resources. These also require that federal undertakings (in the case of the Red River Army Depot such activities as the on-going silvicultural program, proposed future oil and gas leasing, and facility expansion) take into consideration the effects of their proposed activities on these significant materials.

Because important cultural resources are known to exist on the Red River Army Depot and because DARCOM has mandated responsibilities for the identification, evaluation, and protection of public land resources, the development of an installation Historic Preservation Plan is recommended as a long-term goal. Such a plan should be based on a field inventory of the archeological resources retained on the facility; an outline of the scope of work, milestones, and cost of such an inventory and evaluation program is presented in this report.

PREPARERS AND QUALIFICATIONS

Tony Dieste is the principal author of this report. Mr. Dieste has a BA in Anthropology with Highest Honors from the University of Texas and approximately seven years of field experience in Louisiana, Arkansas, Texas, and Mexico. Mr. Dieste has been with Heartfield, Price and Greene, Inc. for approximately five years and has functioned successfully in project management and in report preparation. Mr. Dieste visited the facility and gathered all information necessary for report preparation.

Lorraine Heartfield is a contributing author. Dr. Heartfield has been president of Heartfield, Price and Greene, Inc. since its inception in 1975. Dr. Heartfield, an archeologist, has a BS in Biology from Lamar State College of Technology and an MA (University of Texas at Austin) and PhD (Washington State University) in Anthropology. She has managed and conducted cultural resources projects for federal and state agencies and private firms. She is well versed in federal and state cultural resources and environmental regulations and is highly qualified to provide management expertise for cultural resources permitting. Dr. Heartfield has completed work in Louisiana, Texas, Arkansas, Mississippi, Washington, and Alaska. Selected projects include the ETSI Coal Slurry Line, Oxbow and Chicot Pollux Lignite Leases in Louisiana, Yantis Lignite Project in northeast Louisiana, and the Ozark Pipeline Project in Arkansas and Oklahoma. Dr. Heartfield prepared Section 6.0 of this study and provided guidance and editorial comments during all phases of data assessment and report preparation.

Gary L. Stringer is a contributing author. Mr. Stringer is an earth scientist and has both a BS and an MS in Geology from Northeast Louisiana

University in Monroe, Louisiana. Mr. Stringer has experience as a micropaleontologist/biostratigrapher for Exxon Corporation, and is a nationally recognized otolith specialist. In this report Mr. Stringer compiled the data on the physical setting of the project area and contributed to the interpretation of these data relative to the cultural resources potential on the facility.

ACKNOWLEDGEMENTS

Numerous individuals have contributed to the preparation of this overview and management plan for the Red River Army Depot. Mr. William Shope, Facility Engineering Division, was most cordial arranging for Tony Dieste's visits to the facility. He and his staff were very helpful in the pre-visit assembly of necessary maps and documents and in making copies of pertinent environmental data. Mr. Sid Knight, Fish and Wildlife Biologist for the facility, was a cheerful and knowledgeable guide through the facility to visit the various historic and prehistoric site locations. He also provided essential information on the facility silviculture program and land use practices. Mr. Bill Adcock and Mr. Ralph Lindsey of the Red River Army Depot Environmental Division, provided bluelines of various maps including pipeline rights-of-way and disposal sites on the facility, and also made available documents detailing the facility expansion plans.

Ms. Monna Schubert of the Fort Worth District Corps of Engineers, Real Estate Division, devoted much time to the project by searching for available land acquisition documents and property appraisal reports. Ms. Chris Gabour, Texarkana Title and Abstract Co., Inc., provided all information concerning land patents for the project area. She also provided insight into the availability of early map coverage for the area. Ms. Mable Pretzer, National Cartographic Information Center, Rolla, Missouri, kindly reproduced and made available early USGS maps of the facility acreage. Ms. Marylene Megason, Bowie County Court Clerk, also provied information concerning early land records and county maps for the facility property.

Ms. Carolyn Spock, Texas Archeological Research Laboratory, Austin, provided information regarding known archeological sites and previous archeological investigations in the project area.

Additional thanks go to Drs. Mark Barnes and Harry G. Scheele, NPS, SERO, Ms. Mary Lee Jefferson, NPS, WASO, and Dr. Laverne Herrington, Deputy State Historic Preservation Officer of Texas, who reviewed the draft report; and Ms. Susan Cleveland, Contracting Officer, NPS, SERO.

Final report production, including graphics, has been completed by Woodward-Clyde Consultants, with editorial review (particularly of management recommendations) and text preparation completed by Dr. Ruthann Knudson and Ms. Betty Schmucker.

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FOREWORD

As a federal agency with large public land holdings, the U. S. Army is responsible for the stewardship of a variety of natural and cultural resources that are part of its installations' landscapes. The Army's Materiel Development and Readiness Command (DARCOM) presently manages a nationwide network of 65 installations and 101 subinstallations and separate units, which range in size from one acre to over one million acres. As part of its programs of environmental and property management, DARCOM has requested that the U. S. Department of the Interior's National Park Service(NPS) provide technical guidance to develop programs for managing installation cultural resources.

NPS is thus conducting the DARCOM Historical/Archeological Survey (DHAS), which has two major disciplinary elements. The architectural review and planning function is being directed by the Service's Historic American Buildings Survey (HABS), while the prehistoric and historic archeological resource assessment and planning function is the responsibility of the Service's Interagency Resources Division (IRD). IRD has contracted with Woodward-Clyde Consultants (WCC) for the development of guidelines for the DARCOM archeological management planning effort and for the completion of 41 overviews and plans throughout the central United States. WCC has in turn subcontracted the technical studies to several regional subcontractors, with final editorial review of reports and preparation of text and illustrations handled by WCC.

This overview and recommended management plan for the archeological resources of the Red River Army Depot was prepared by Heartfield, Price

and Greene, Monroe, Louisiana, under subcontract to WCC. It follows the guidance of "A Work Plan for the Development of Archeological Overviews and Management Plans for Selected U. S. Department of the Army DARCOM Facilities," prepared by Ruthann Knudson, David J. Fee, and Steven E. James as Report No. 1 under the WCC DARCOM contract. A complete list of DHAS project reports is available from the National Park Service, Washington, DC.

The DHAS program marks a significant threshold in American cultural resource management. It provides guidance that is nationally applicable, is appropriately directed to meeting DARCOM resource management needs within the context of the Army's military mission, and is developed in complement to the state Resource Protection Planning Process (the RP3 process, through State Historic Preservation Offices). All of us participating in this effort, particularly in the development of this report, are pleased to have had this opportunity. Woodward-Clyde Consultants appreciates the technical and contractual guidance provided by the National Park Service in this effort, from the Atlanta and Washington DC offices and also from other specialists in NPS regional offices in Philadelphia, Denver, and San Francisco.

Woodward-Clyde Consultants

Ruthann Knudson

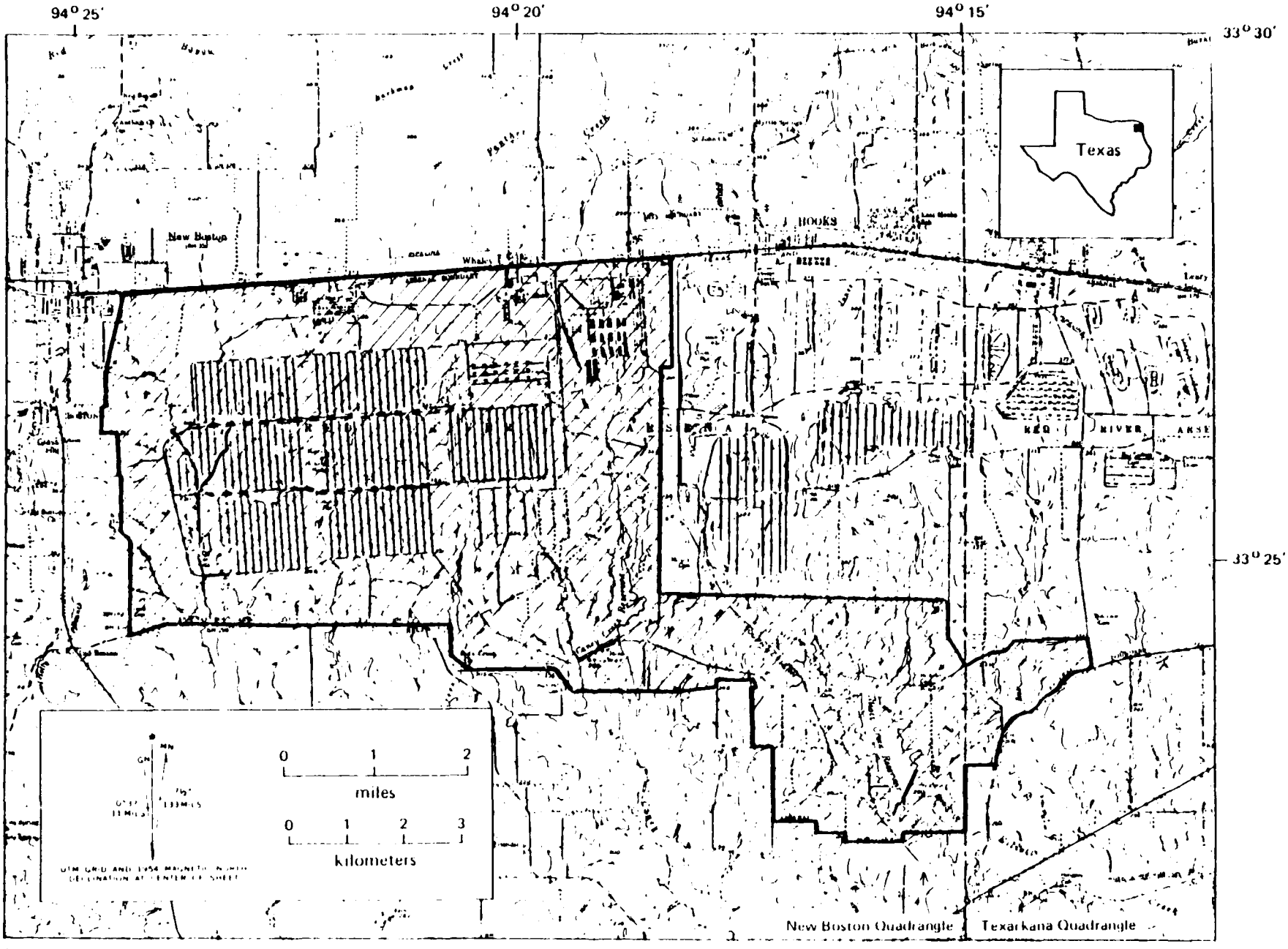
1.0 INTRODUCTION

The following report is an overview of and recommended management plan for the prehistoric and historic archeological resources that are presently known or likely to occur on the Red River Army Depot in Bowie County, Texas (Figure 1-1). This facility is an installation of the U. S. Department of the Army DARCOM (Materiel Development and Readiness) Command, which as a reservation of public land has responsibilities for the stewardship of the cultural resources that are located on it. The assessments and recommendations reported here are part of a larger command-wide cultural resource management program (the DARCOM Historical/ Archeological Survey, or DHAS) which is being conducted for DARCOM by the U. S. Department of the Interior's National Park Service. The following is that portion of the facility-specific survey that is focused on the prehistoric and historic resource base of the Red River Army Depot, and was developed in accordance with the Level B requirements as set forth in the archeological project Work Plan (Knudson, Fee, and James 1983). A companion historic architectural study is in preparation by the National Park Service's Historic American Buildings Survey, but is not yet available (William Brenner, personal communication 1984).

1.1 PURPOSE AND NEED

A corpus of Federal laws and regulations mandate cultural resources management on DARCOM facilities. Briefly these are:

- The National Historic Preservation Act of 1966 as amended (80 Stat. 915, 94 Stat. 2987; 16 USC 470), with requirements to,



Note Base map is the USGS New Boston, TEX (1955), revised 1959 and Texarkana, TEX ARK (1954), 1 62500 sheets

Figure 1-1. MAP OF THE GENERAL VICINITY OF THE RED RIVER ARMY DEPOT

- inventory, evaluate, and where appropriate nominate to the National Register of Historic Places all archeological properties under agency ownership or control (Sec. 110(a)(2))

- prior to the approval of any ground-disturbing undertaking, take into account the project's effect on any National Register-listed or eligible property; afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project (Sec. 106)

- complete an appropriate data recovery program on an eligible or listed National Register archeological site prior to its being heavily damaged or destroyed (Sec. 110(b), as reported by the House Committee on Interior and Insular Affairs [96th Congress, 2nd Session, House Report No. 96-1457, p. 36-37])

- Executive Order 11593 (36 FR 8921), whose requirements for inventory, evaluation, and nomination, and for the recovery of property information before site demolition, are codified in the 1980 amended National Historic Preservation Act

- The Archeological and Historic Preservation Act of 1974 (88 Stat. 174, 16 USC 469), which requires that notice of an agency project that will destroy a significant archeological site be provided to the Secretary of the Interior; either the Secretary or the notifying agency may support survey or data recovery programs to preserve the resource's information values

- The Archeological Resources Protection Act of 1979 (93 Stat. 721, 16 USC 470aa; this supersedes the Antiquities Act of 1906 [93 Stat. 225, 16 USC 432-43]), with provisions that effectively mean that

  - The Secretary of the Army may issue excavation permits for archeological resources on DARCOM lands (Sec. 4)

- No one can damage an archeological resource on DARCOM lands without a permit, or suffer criminal (Sec. 6) or civil penalties (Sec. 7)

- 36 CFR 800, "Protection of Historic and Cultural Properties" (44 FR 6068, as amended in May 1982); these regulations from the Advisory Council on Historic Preservation set forth procedures for compliance with Section 106 of the National Historic Preservation Act

- Regulations from the Department of the Interior setting forth procedures for determining site eligibility for the National Register of Historic Places (36 CFR 60, 36 CFR 63), and standards for data recovery (proposed 36 CFR 66)

- Guidance from the U.S. Department of the Army as to procedures and standards for the preservation of historic properties (32 CFR 650.181-650.193; Technical Manual 5-801-1; Technical Note 78-17; Army Regulation 420-40), and procedures implementing the Archeological Resources Protection Act (32 CFR 229).

These laws and regulations should be integrated with planning and management to insure continuous compliance during operations and management at each facility. This can best be achieved by an understanding of the procedures implied by the regulations and an awareness of the cultural resources potential at each facility.

1.2 THE RED RIVER ARMY DEPOT

The Red River Army Depot is located in northeast Texas approximately 18 miles west of Texarkana, in the east-central portion of Bowie County (Figure 1-1).

Purchase of the property (an area of 19,998 acres) was authorized on June 21, 1941. Since this time, at least two tracts have been declared excess to the needs of the Government and were transferred to GSA for disposal. The facility presently covers an area of approximately 19,081 acres (U. S. Department of the Army 1983).

The facility was officially named Red River Ordnance Depot and designated as a permanent installation by War Department General Orders No. 9, dated August 9, 1941. Original construction was completed in April of 1942.

The Depot was originally intended to serve only as an Army ammunition storage installation but was assigned three other missions as war needs demanded: tank repair in January 1942; general supply storage in February 1942; and Ordnance unit training in August 1942. Storage of strategic material was assigned in 1942 and in 1948-1949 Red River Army Depot was designated the distribution depot for the Fourth Army Area and overseas through OSANO. Supply of U. S. Army, Caribbean, and Air Force stations in the Caribbean, Mediterranean, and North Africa areas was assigned in 1958. Red River Army Depot was selected as an assembly depot for M289 Launcher supplies and equipment for NATO-Grant Aid and as the site of HAWK assembly in 1959. In August 1968, the HAWK assembly site was closed. In January 1972, the conventional ammunition gauge mission was transferred here, and this depot was the initial supply source for MAP recipients in Asia, Africa, the Middle East, and Central and South America. In 1974, Red River Army Depot was designated as an Area Oriented Depot responsible for supply support to activities in the central United States and Panama (U. S. Department of the Army 1983).

Buildings in the north and northwestern sections of the irregularly shaped depot consist primarily of munitions storage igloos, production/ supply facilities, and administrative areas. The south and southeastern sections contain two reservoirs (which supply depot water needs), demolition areas, and rifle and grenade ranges (Figure 1-2).

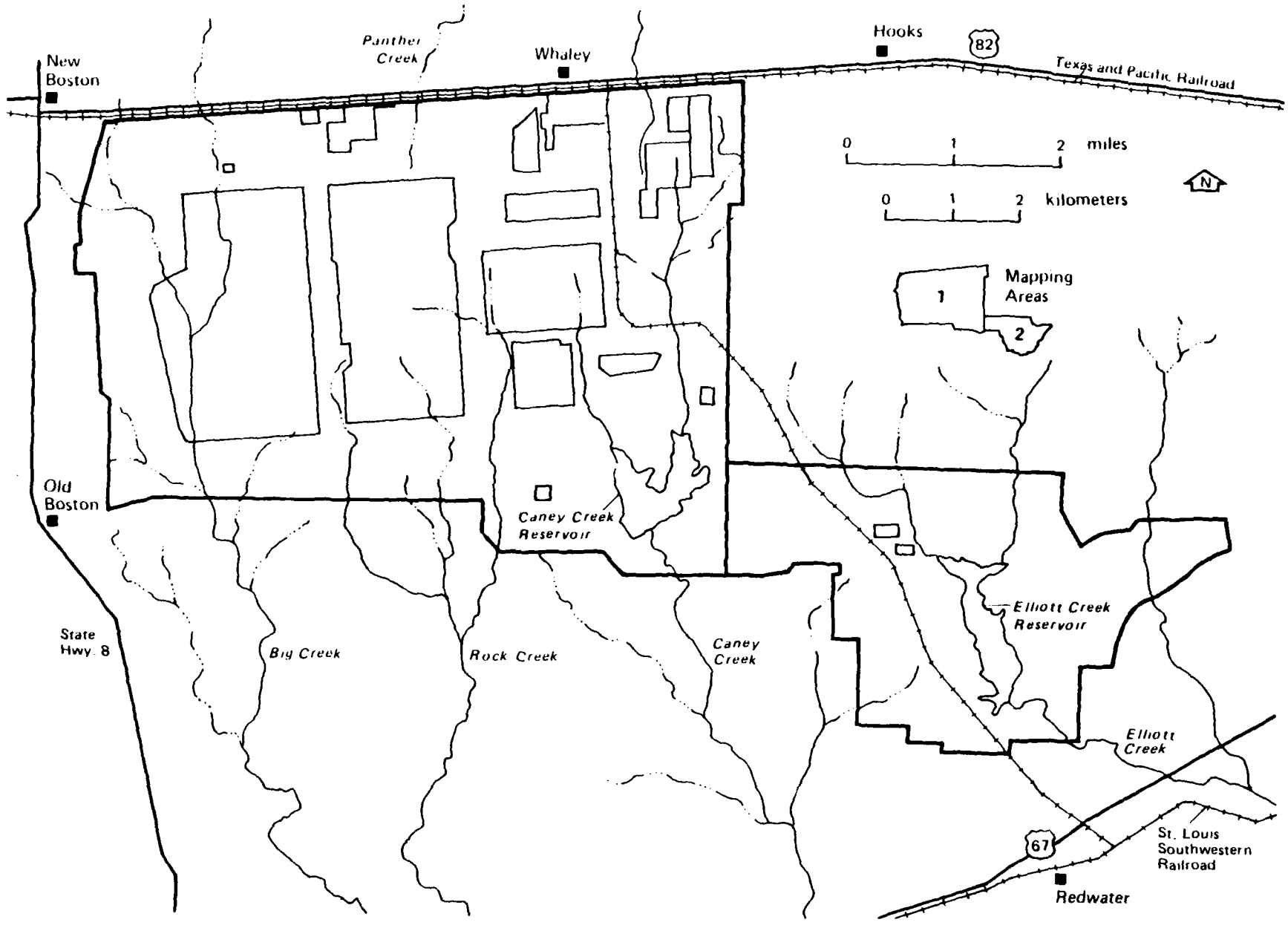


Figure 1-2. MASTER BASE MAP OF THE RED RIVER ARMY DEPOT

Building placement and location in the depot is determined by a Quantity Safety Distance (QSD) criterion that establishes the relative positioning of all structures, depending on the type and nature of the explosive material being produced or stored in any given building.

1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK CONDUCTED ON THE RED RIVER ARMY DEPOT

Espey, Huston and Associates (1980) conducted a cultural resources and endangered species survey of an electr[illegible] transmission line that in part crossed the Red River Army Depot, under contract to the Southwestern Electric Power Company (SWEPCO). A right-of-way width of 150 feet was surveyed for the approximate three and one-half miles of proposed line within the Depot boundary. About 64 acres was intensively surveyed and five historic sites were recorded. Recorded cultural resources are discussed in Section 3.3 of this report.

Although the specific survey methodology is not described, coverage and intensity of investigation are considered very adequate as approximately 65 percent of the surveyed area had been cleared of trees and afforded 100 percent surface visibility. However, given the size of the surveyed area, approximately 33 percent of the total facility acreage, an adequate characterization of the resource base was not achieved.

1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

The primary significance of the prehistoric cultural resources that may potentially occur on the facility lies with scientific researchers. These individuals are concerned with the resources in terms of their inherent scientific information regarding past lifestyles as well as with their synchronic and diachronic development. No known contemporary sociocultural value appears to be attached to the potential cultural

resources of the facility by Native American groups. The disturbance or destruction of American Indian burials, is, however, a sensitive and emotional issue that should be recognized.

As regards the historic resources of the facility, ethnicity in the area is limited to the context of Black/White cultural groups. There is at present no known culturally-defined interest in historic cultural resources.

2.0 AN OVERVIEW OF THE CULTURAL AND RELEVANT NATURAL HISTORY OF THE RED RIVER ARMY DEPOT

2.1 THE PHYSICAL ENVIRONMENT

2.1.1 Earth Resources

The facility lies entirely within the Gulf Coastal Plain Province of North America. The Gulf Coastal Plain Province is a segment of a Mesozoic-Cenozoic coastal geosyncline (Murray 1960). Within the province, the exposed surface of the strata possesses an overall slope toward the Gulf of Mexico. Within the facility, the vast majority of the exposed sediments are Eocene in age (American Association of Petroleum Geologists 1976). These Eocene sediments consist mainly of carbonaceous sands, silts, and clays with calcareous and ferruginous concretions and petrified or silicified wood. Two major geologic groups, the Midway Group and the Wilcox Group, are recognized in surface exposures within the facility (U. S. Department of the Army 1978). Approximately 80 percent of the exposures, located in the northern section of the facility, consist of the gray to yellowish-gray silty clay of the Midway Group. The south-central portion and the narrow southeastern portion of the facility consists of the buff to gray carbonaceous sands, silts, and clays of the Wilcox Group. These sediments also contain various types of concretions, petrified wood, and lignite. Recent alluvium is found along the drainageways but constitutes a minor percentage of the exposed sediments.

The exposed geologic sediments represent possible lithic sources for use by prehistoric inhabitants. Sandstone concretions found in both

geological groups are suitable for the manufacture of tools such as metates, manos, hammerstones, milling stones, and sandstone saws. Large pieces of silicified or petrified wood and chert gravels found in the Wilcox formation (Fisher 1965:197) also represent a source of lithic material. The petrified wood and chert were excellent for the production of various types of projectile points and scrapers. Clays were readily available for use in ceramic manufacture as well as sand for ceramic tempering (Fisher 1965:85). Abundant sources of lithic material are also found just north of the facility in the Pleistocene terrace deposits and Recent alluvium that surround the Red River. Historic and modern use of the sands and gravels is evidenced by abandoned and on-going quarry operations in surrounding areas.

The physiography of the facility is characterized as gently rolling ridges with marshy bottomlands. The gently rolling hills represent dissected Tertiary strata. The highest elevations are found in the extreme northwestern portion of the facility. The marsh bottomlands are not as extensive as the gently rolling hills. Bottomlands are generally restricted to the areas around the streams, creeks, and two reservoirs. Lowest elevations (approximately 260 feet AMSL) are found in the southeastern portion of the facility where Elliott Creek leaves the property.

Although the majority of the facility is characterized by gently rolling hills, a unique feature present is the pimple mounds or microknolls. Pimple mounds are found throughout Bowie County and have been subjected to several studies with no consensus on their origin. Most of these features range in height from two to three feet with some attaining heights up to 6 feet. The most common shapes are circular and elliptical.

The direct relationship between soil types and physiographic expression is demonstrated by the distribution of the soils in the facility. The uplands are characterized mainly by dark grayish-brown Sawyer silt loam (most abundant) and Ruston fine sandy loam; the latter

has a brown, slightly acid surface layer. Annona, a very dark grayish-brown loam, is commonly found on the broad flats and small depressed areas. The broad interstream divides on the uplands are characterized mainly by Eylan dark grayish-brown, very fine sandy loam which is usually irregularly shaped in its distribution patterns. The dissected upland side slopes, especially around drainageways, are characterized mainly by a brownish-gravelly Woodtell sandy loam. The bottomlands in the facility, especially ones that are frequently flooded, are characterized by a brown Sardis silt loam and a dark brown Thensas fine sandy loam. Upland udorthents represent soils horizons that have been broken up, removed, or mixed by gravel mining or excavations associated with facility development (U. S. Department of Agriculture 1980). These areas correspond with Ground Disturbance Activity (GDA) 16 presented in Section 3.0.

2.1.2 Water Resources

The natural drainage of the facility consists of two basins, the Red River to the north and the Sulphur River (Lake Texarkana) to the south. The northern drainage includes Panther Creek perennial and its intermittent tributaries in the northeastern portion of the facility. Drainageways of the southern basin include Big Creek and its tributaries in the western portion of the Depot; Rock Creek in the central portion; and Caney, Elliott, and East Fork creeks in the eastern portion. There are two modern-made lakes on the facility: Caney Creek Reservoir (200 acres) and Elliott Creek Reservoir (225 acres).

Many of the streams that originate within the facility are perennial and would have provided reliable sources of water for prehistoric populations as well as stable freshwater or marsh environments for fauna and flora. Ample fresh water and freshwater habitats are also available to the north and south of the facility along the Red River and Sulphur River. The Red River has been in its current course for at least 500 years, and in various other but generally parallel courses for probably the last 12,000 years (Saucier 1974); it could have provided ample water resources for that period.

2.1.3 Modern Climate

Major factors influencing the climate of the facility and surrounding areas include the proximity of the warm Gulf of Mexico waters, the large continental land mass to the north, and the subtropical latitude. It should be noted that no major climatic changes are believed to have occurred in this region during the last thousand years, and the environment may have been similar for the lst 5000 years (Burden et al. 1978). Wharton (1978) indicates that the present climate may have been established as early as 11,000 B.P.

Mild winters and hot summers characterize the climate of the facility and surrounding areas. Warm moist air from the Gulf of Mexico and cooler continental air combine to produce a high, oppressive relative humidity.

Temperatures for the winter are usually mild, and spring and fall temperatures are also mild with cool nights and warm days. Temperatures for the summer are hot and compounded by the high humidity. The average winter temperature is 45 °F, and the average daily minimum temperature is 34 °F. The average summer temperature is 80 °F, and the average daily maximum temperature is 92 °F (U. S. Department of Agriculture 1980). The average frost free period is from mid-March to mid-November.

Local precipitation is mainly rainfall; the local mean annual precipitation for the area is 44 inches, of which rainfall usually accounts for approximately 43 inches. Thunderstorms occur about 50 days of the year, mostly in the spring. Snowfall is rare on the facility; 75 percent of winters have no measurable snowfall. Winds in the area are predominantly northeastern during the fall and winter and southwestern during the spring and summer. Average wind velocity is 8.4 miles per hour (U. S. Department of Agriculture 1980).

2.1.4 Plant Resources

The flora on the facility is characterized by mixed pine and oak (Arbingast and Kennamer 1963), basically piney woods and post oak (Gould

1975). Pines are dominant on higher elevations and in drier areas and oaks are dominant in the moist bottomlands. The pre-settlement vegetation was probably similar to the present flora. However, relative abundances of various plant species on the facility have changed greatly due to lumbering, wildlife habitat improvement procedures, and other land management practices.

Some of the more abundant species of trees present on the facility today include loblolly pine, short leaf pine, slash pine, black willow, blackjack oak, water oak, willow oak, sweetgum, post oak, southern red oak, and French mulberry. Some of the more common shrubs include hawthorne, sumac, tree huckleberry, southern wax myrtle, honeysuckle, and American beauty berry. Naturally occurring grasses include bermuda grass, broomsedge, dallisgrass, purpletop, and little bluestem.

In addition to providing various habitats for fauna, the flora of the facility and surrounding area represented an ample food source for prehistoric people. Harvestable staples included nuts, seeds, fruits, and general vegetation (roots, stems, leaves). Nuts are among the more extensively exploited natural local plant crops available. They are rich in fats and proteins and are particularly attractive because of their long term availability (Martin, Zim, and Nelson 1961). Among the more important nut-bearing trees that could have been available on the facility and in surrounding areas are the white oak, black oak, southern red oak, blackjack oak, water oak, shagbark hickory, mockernut hickory, black walnut, and pecan.

The seeds of various trees, shrubs, and weeds may have been more important as a food source for animals rather than for human communities. Prehistoric use of plants such as common cattail and dandelion is likely in the study area, as well as various tubers present in pine/hardwood areas. Vegetative parts of plants could also have been used for ritual, subsistence, and craft activities. Berries seasonally available would have included the blackberry, dewberry, wild grape, and

wild strawberry. Other fruits would include persimmons, plums, cherries, and other small fruits of various shrubs.

2.1.5 Animal Resources

The faunal community of the facility and surrounding area includes aquatic, semi-aquatic, and terrestrial animals, both invertebrates and (more importantly) vertebrates. These animal resources were a dependable food source for the indigenous population and were used for clothing, tools, decoration, shelter, and a means of monetary exchange.

Invertebrates. A great diversity of invertebrates is present and abundant in the facility and surrounding area. Swanton (1946) noted the use of invertebrates (mollusks and crustaceans mainly) by southeastern Indian tribes as a source of food, especially pelecypods such as freshwater mussels, clams, and gastropods. Crayfish and freshwater shrimp were important crustaceans. The nutritional value and caloric content of mussels are very low, and freshwater mussels were probably a minor food supplement or famine food (Parmalee and Klippel 1974). This probably holds true for many of the invertebrates.

Fishes. At least 50 species of fishes are present in the facility and surrounding areas. The Red and Sulphur rivers as well as creeks, lakes, and ponds represent important food resource locations. Fishes that could have been used for food or bait include several species of catfish, crappie, and gar, numerous sunfish, bass, freshwater drum, buffalo, shad, sucker, carp, bowfin, shiner, white bass, and pickerel (McCune 1971). Many of these species are quite abundant and represent excellent food sources. Aboriginal techniques for catching fish could have included use of hook and line, weir, net, and trap; dragging; bow and arrow; spear; and poison (Swanton 1946).

Amphibians. There are at least 25 species of amphibians within the facility and surrounding areas (Conant 1975). Thorne (1977) reports that frog legs are generally known as a good source of food, and in

prehistoric time salamanders were also eaten. Edible and larger frogs that could have been used included bullfrogs, bronze frog, and leopard frog. Today, only the true frogs are valued for economic or dietary use.

Reptiles. Approximately 50 species of reptiles are believed to be present in the facility and surrounding area (Conant 1975), including snakes, lizards, turtles, and possibly alligators. Many of these could have been a prehistoric food source. The turtle would have been the most advantageous food resource because of the amount of meat per kill, ease of collection, and its nutritious eggs. Turtles that have been used include the common snapping turtle, alligator snapping turtle, the painted turtle, and box turtle.

Birds. The facility is located in the central migration route and at least 100 species of permanent and migratory birds are known to occur there or in adjacent areas (Robbins, Bruun, and Zim 1966). Small perching birds are abundant and there are raptors, but they were probably not heavily used as a food resource. Waterfowl (ducks, coots, herons, mallards) represent a more exploitable food resource as would populations of wild turkeys and passenger pigeons. Wild turkeys were once more abundant in this region and remains of these large birds, which may weigh 20 pounds, are a substantial portion of the archeological faunal remains in the southeastern United States (Thorne 1977).

It should be noted that two endangered or threatened species of birds may be present on occasion within the facility. American bald eagles are occasionally sighted in this area (U. S. Department of the Army 1979). Abandoned red-cockaded woodpecker dens have been discovered on the Red River Army Depot by a survey team from the U. S. Army Environmental Hygiene Agency (U. S. Department of the Army 1980). At the time of this survey it was not determined if these woodpeckers had migrated on to the adjacent Lone Star facility property.

Mammals. Approximately 50 species of mammals occur naturally in the facility area and adjacent regions (Palmer 1954), and many could have supplied dependable food sources for indigenous populations. More important mammalian food resources include rabbit, squirrel, raccoon, beaver, oppossum, deer and possibly smaller mammals. Bison, which are now extinct or threatened in this region, also could have been a major resource. The white-tailed deer probably was the primary resource of meat for prehistoric inhabitants, being both abundant and yielding a large amount of meat per kill (Thorne 1977).

2.1.6 Paleoenvironment

Specific past climatic and ecologic conditions in the Red River Army Depot region are difficult to ascertain, but generalities have been developed (Table 2-1). Data are sparse in some time intervals and interpretation is tentative. From approximately 35,000 to 25,000 years before present (BP), the climate was characterized by a fairly stable, cool, moist condition related to the later waning stages of early Wisconsin glaciation (Saucier 1974). The fauna was characterized by large mammals such as mammoth, mastodon, tapir, musk ox, giant bison, giant armadillo, and sloth (Lowery 1974). Termination of the mid-Wisconsin interglacial stages and increasing late Wisconsin glaciation caused a progressive cooling in the climate from approximately 25,000-14,000 BP. Waning late Wisconsin glaciation and a major period of glacial recession from 14,000-10,000 BP triggered a general warming and drying trend. It should be noted that drastic variation in the continental climate is believed to have occurred during this stop interva', including brief, rapid glacial advances in northern North America (Saucier 1974). The climate from 10,000 BP to approximately 5000 BP was characterized by warmer, drier conditions. The megafauna had become extinct and were replaced by smaller mammals such as deer. From 5000 BP to the present the climate has become generally wetter and cooler, but has remained fairly constant except for very short periods of cooling and warming.

Table 2-1. GEOCHRONOLOGY AND RELATED EVENTS IN THE LOWER MISSISSIPPI VALLEY

Years Before Present	Events
40,000-35,000	The latter waning stages of Early Wisconsin glaciation. Resulted in the introduction of large volumes of glacial outwash into the Lower Mississippi Valley. Braided stream deposits seen today in the Western Lowlands of Arkansas and Macon Ridge in Louisiana.
30,000	The maximum level of aggradation of glacial outwash deposition by the braided Arkansas River.
30,000-28,000	Maximum withdrawal of the Early Wisconsin glaciation (Mid Wisconsin Interglacial Stage). Ancestral Mississippi River probably remained in a braided regime. Development of several perennial lakes on minor Mississippi Valley tributaries (best developed on Ouachita River in Louisiana and Arkansas). Sea level approximately equal to present sea level in Louisiana.
25,000	Termination of Mid-Wisconsin Interglacial stage and increasing Late Wisconsin glaciation. Mississippi River was in a braided regime and was more or less along the present lower courses of the Black and White rivers. The Arkansas River flowed west of the Macon Ridge.
25,000-20,000	Increasing Late Wisconsin glaciation with cool and wet pluvial conditions in the Lower Mississippi Valley area. Arkansas, Big Black, Red, and Sabine rivers indicate cyclic downcutting and valley degradation. Last major deposition of loess.
20,000-18,000	Waning Late Wisconsin glaciation. Substantial increase of the volume of glacial outwash carried by the Mississippi River. Last major glacial outwash deposition and braided-stream terrace formation. Arkansas River depositing load of glacial outwash west of the Grand Prairie region in Arkansas and north and west of the Macon Ridge in Louisiana. Red River probably did not carry glacial outwash and did not develop a cone or fan as did other rivers in the area. Only part of the Red River was in a braided regime.
12,000	Probable major period of glacial recession. Mississippi River south of Baton Rouge, Louisiana, changed from a braided-stream to a meandering regime. Extensive backswamp areas in the Atchafalaya Basin. North of Baton Rouge, Mississippi River still braided. Arkansas River changed from braided to a meandering regime. Oldest discernable meander belt of Arkansas River found southeast of Little Rock, Arkansas. Level of the floodplain of the Mississippi River, south of Baton Rouge, was probably 75-80 feet lower than present. North of Baton Rouge, floodplain level was probably 20-25 feet lower. Floodplains of Arkansas and Red rivers were probably 10-15 feet lower than present and have been aggrading slowly since.
11,000-7000	Brief glacial advance (10,000-11,000 BP) followed by a retreat of ice sheet north of Great Lakes. Mississippi River in meandering regime as far north as Memphis. Development of oldest discernable Mississippi River meanders belts.
7500-4000	Abandonment of initial Mississippi River meander belt. Development of meander belts and subdeltas of the Mississippi River. Development of meander belts 2, 3, and 4 of the Mississippi River. Arkansas River meander belts restricted to west of the Macon Ridge. Four major belts of the Arkansas River are formed. Early meander belts of the Red River.
4000 1000	Abandonment of easternmost meander belt 4 of the Mississippi River and full discharge of the Mississippi River in the westernmost meander belt 4. Development of subdeltas as in south Louisiana. Mississippi River shifted to meander belt 5 (present belt). The amount of time involved in the shift to present river channel varied in different localities. Probably at least 3 meander belt shifts of the Red River.
1000-Present	Mississippi River continues in meander belt 5. Arkansas River in present meander belt. Development of Plaquemines modern Mississippi River subdelta. Red River course in present meander belt since about 500 years BP.

Compiled from Saucier 1963, 1964; and Saucier and Fleetwood 1970

The geochronology for the last 40,000 years of this region is quite complex. The vast continental glaciation of the Pleistocene did not actually extend into the Lower Mississippi Valley region. However, the continental ice sheets were responsible for altering preglacial drainage, for creating the southward-trending river and valley and for supplying large amounts of melt-water and glacial outwash (Saucier 1974). The Pleistocene cyclic glaciation also caused major changes in base levels of erosion and deposition and in climatic conditions. As continental glaciation increased, eustatic sea level falls occurred and the shoreline of the Gulf of Mexico retreated southward. The drop in sea level caused entrenchment of the lower reaches of streams that discharged directly into the Gulf of Mexico and a steepening of stream gradients. Also, pronounced pluvial conditions caused appreciable increases in the discharges of the Mississippi River tributaries. These increased discharges resulted in valley degradation and current terrace formation (Saucier and Fleetwood 1970).

Prior to 40,000 years ago, the area of the Red River Army Depot had been subjected to repeated periods of widespread deposition of sands and gravels on an erosional surface consisting of Tertiary sediments. Over the past 40,000 years, similar events may have influenced aboriginal inhabitants in a variety of interrelated means such as site selection, destruction and burial of sites, climatic conditions, type of fauna and flora available, and edaphic conditions.

2.2 THE CULTURAL ENVIRONMENT

Table 2-2 presents a brief overview of the cultural chronology of the Red River Army Depot and surrounding region within a radius of about 100 miles (160 km).

The project area is located within the Great Bend archeological region that is located in the larger archeological area defined by Schambach (1970) as the Trans-Mississippi South. This area was first

Table 2 2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE RED RIVER ARMY DEPOT

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
American	Military	AD 1940 to Present	Plant design and construction; non-random building placement as determined by Quantity Distance (QD) criteria	Ammunition manufacture (load, assemble and pack) and associated support	Dominance of American made items; machine made bottles; aluminum and metal alloys; disposable containers; plastics
	Settlement	AD 1836 to 1940	Small homesteads and farms in relatively elevated, level uplands; population increase	Agriculture (cotton, corn, wheat); livestock raising; lumbering; some oil and gas exploration; coming of railroads encouraged more farming and made better and more accessible markets	Log and frame dwellings; metal nails (round and square); brick and sandstone foundations; colored, clear and manganese (purple) glass; stoneware; whiteware; English ironstones; canning jars with metal rims and glass liners; metal farm implements and woven wire
	Homestead Claims	AD 1910 to 1836	Initial land patents and grants; begin population increase; small farms and homesteads in uplands primarily; beginning of small towns in the area	Small-scale farming; initial land clearing for planting; hunting and animal husbandry	Log structures predominate in early part of period with frame structures later; hand-forged nails (early) and wire, machine cut nails (later); hand blown glass (early) to semi-automatic mold blown bottles (late); metal farm implements; English ceramics dominate; pearlware (early) to whiteware (late)
Colonial	Mexican	AD 1836 to 1821	Mexican independence from Spain and settlement encouraged; begin Wavell's Colony (included all of Bowie County); Texas independence from Mexico; small homesteads established prior to initial patent application	Agriculture (subsistence oriented); animal husbandry; hunting and gathering; trading with Kadohadacho tribes	Possibly some Spanish and Mexican Majolica wares; tin and enameled earthenware; wrought nails; black/dark green hand blown glass; log structures
	Spanish	AD 1821 to 1690	Beginning of east Texas missions and begin mission land grants; numerous towns in south and southeast Texas established; no settlement in facility area	Limited agriculture; animal husbandry; hunting and gathering; trade with Caddo Indians	Possibly some Spanish and Mexican Majolica wares; tin and enameled earthenware; wrought nails; black/dark green hand blown glass; log structures

Table 2 2 A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE RED RIVER ARMY DEPOT (continued)

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
	French	AD 1719 to 1821	Colonies and trading posts established; no permanent settlement of the area undertaken	Trade between French and Caddo Indians; hunting and gathering	Possible French faience ceramics; English salt glazed wares; glass trade beads; gun flints
Ethno historic	Caddo V	AD 1700 to 1835	Sustained interaction between Caddo V Kadohadacho groups and Spanish and French; settlements in "big bend" of Red River northeast of facility; small aboriginal groups with band organization; hamlets and small villages of a few acres in size in large floodplains	Trade with French and Spanish of bow wood, hides, salts, livestock; aboriginal cultivation of maize, beans and squash; hunting and gathering still practiced	European trade items (metal and leads); Natchitoches Engraved ceramics
Ethnohistoric/ Prehistoric Post-Archaic	Caddo IV (Belcher Focus)	AD 1700 to 1500	Initial contact with European explorers and settlers; sedentary Indian villages on natural levees of Red River; mound centers or "community centers"	Trade with Europeans limited; trade between Belcher Focus peoples and contemporaneous tribes of Texarkana, Mid-Ouachita, Bossier, and Titus foci peoples; cultivation of beans, maize, squash; hunting and gathering	Ceramic types Simmer Linear Punctated, Maddox Engraved, Pease Brush-Incised, Hodges Engraved Glassel Engraved, Belcher Engraved and Ridged; Bassett arrow points; flat-topped mounds for building placement
Post-Archaic	Caddo III (McCurtain Focus)	AD 1500 to 1400	Mound centers and non-mound habitation sites usually on sandy terraces by major streams near a confluence; house, middens, and burials and habitation features (hamlet or villages)	Intensive horticulture; hunting and gathering; possible bison hunting on ranges to the west	Ceramic types Nash Neck Banded, Maydelle Incised, Simms Engraved, Avery Engraved and Hudson Trailed Incised usually tempered with fine clay or minor amounts of sand or sand-shale; corner notched, side notched, ovate unnotched and triangular unnotched arrow point types (Alba, Scallorn, Young, Catahoula, Washita, Bonham, Fresno, Maud and Talco) and contracting stem points (Gary)

Table 2 2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE RED RIVER ARMY DEPOT (Continued)

Cultural Unit: Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
	Caddo III (Texarkana Focus)	AD 1500 to 1400	Usually mounds in association with habitation area (village or hamlet) in floodplain close to major streams and at times on high terraces or ridges	Maize and bean cultivation; hunting and gathering; no evidence of trade with con temporaneous groups	Ceramic types (usually sand or clay grit temper but minor amounts crushed shell is present); McKinney Plain, Nash Neck Banded, Avery, Hatchel, Barkman, Hempstead, Bailey, Simms Engraved, Pease Brush Incised, Foster Trailed Incised; arrow point types Bassett and Maud; flat topped mounds
	Caddo II (Haley Focus)	AD 1400 to 1200	Sites usually are mound centers with associated villages are located in major floodplains; sedentary occupation with dis persed farmsteads	Maize and bean cultivation; hunting and gathering; no evidence of trade with con temporaneous groups	Pease Brush Incised is most common pottery type; most arrow points are corner-notched Scallorn type
	Caddo I (*Alto* Focus)	AD 1200 *to* 800	Villages and hamlets with and *without mounds (habitation areas* with middens) on sandy ridges or terraces adjacent to small streams	Some trade with contemporary indigenous groups indicated	Ceramics tempered with clay, clay-grit and occasionally bone or sand and common types are Holly Fine and Hickory Fine Engraved, Crockett Curvilinear Incised, Pennington Punctate Incised, Davis, Duncan and Kiam Incised, Weches Fingernail Impressed, Duren Neck Banded and Bowles Creek Plain; corner-notched Alba arrow points, Gary points; ground stone petaloid celts and other ground stone tools
	Coles Creek	AD 750 to 1000	Overlap with Caddo I not com-pletely understood - few sites of the period located in uplands; renewal of mound building; mounds designed for building substruc-tures rather than burial mounds; small villages and hamlets pre dominate; population increase	Introduction of flint maize cultivation; emphasis on hunting and gathering	Pure Coles Creek artifact types difficult to isolate; circular house plans; 2 or 3 flat topped pyramidal mounds arranged and punctated pottery types; Gary dart points; Alba and Scallorn arrow points; Coles Creek Incised pottery

Table 2 2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE RED RIVER ARMY DEPOT (concluded)

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
	Fourche Maline (Crenshaw Field Bayou Focus)	1000 BC to AD 800	Sites ranged in size from small upland components that may represent specialized activity sites to small and medium sized villages in the lowlands (2-10 acres)	Assumed exploitation of cultivated plants both tropical and native, in conjunction with hunting and gathering	Representative of Period Cooper Boneware and Williams Plain ceramics. Gary variety LeFiore projectile points. Double bitted chipped stone axes, boatstones, polished stone gorgets and pendants. Cremation burials in small cemetaries in the villages and villages with deep, extremely rich middens, often 2 m deep.
Archaic		1000 to 6000 BC	Seasonal migration of small bands to maximize efficiency; more stable permanent settlement toward end of the era; resource specific camps in uplands and riverine settings; seasonal camps in all environmental settings	Hunting of small game animals and gathering of plant and aquatic resources	Absence of pottery and arrow points; larger projectiles (dart points) present; ground stone; atlatl weights; lithic scatters
Paleo-Indian		6000 to 10,000 BC	Low population density; semi-nomadic or seasonal movement of extended family or multi-family over wide areas between short-term camps, usually in uplands or along terraces	Hunting of Pleistocene megafauna and other available game; gathering	Lanceolate dart point types Clovis, Plainview, Meserve, Scottsbluff; lithic scatters and general purpose tool kits (unidentifiable as Paleo Indian without dart point association)

recognized as a distinct archeological area when Hoffman (1971) referred to it as the "Great Bend of the Red River region." With additional archeological evidence, Schambach (1982) conferred regional status to the area and further defined the Great Bend region as the Red River alluvial valley and the adjacent uplands on both sides of the valley, with boundaries defined as the Arkansas-Oklahoma and Arkansas-Louisiana state borders.

2.2.1 Prehistory

Paleo-Indian Period. The Paleo-Indian period, which extends from about 10,000 to 6000 BC, represents the earliest evidence of human habitation in North America. The accepted criterion of Paleo-Indian occupation is the presence of fluted or unfluted, lanceolate projectile points. Archeologists believe that the Paleo-Indian culture focused on big-game hunting, and was characterized by small, semi-nomadic bands pursuing megafauna as a major resource base (cf. Story 1981:142-143).

Information concerning Paleo-Indian occupation in the Central Sulphur River Basin is virtually nonexistent. Although projectile points ascribed to such Paleo-Indian types as Clovis, Folsom, Plainview, Scottsbluff, Meserve (Dalton), and San Patrice have been found on surfaces throughout northeast Texas, no actual Paleo-Indian sites with stratified, in situ deposits have been recorded there (cf. Davis 1970; Shafer 1977; Suhm, Krieger, and Jelks 1954; Story 1981:142-143; Webb 1960).

Archaic Period. The Archaic period in northeast Texas is believed to have begun at approximately 6000 BC and is distinguished from the earlier occupations by a greater variety of tool forms and greater variation in such forms within any single locale. Archaic sites, often nothing more than lithic scatters, have long been ignored in northeast Texas in favor of the richer Caddoan sites of the region (Story 1976:46). Suhm, Krieger, and Jelks (1954) initially defined the East Texas Archaic as a long-lived, static tradition comprised of mobile groups of hunters and

gatherers. Johnson (1962:268-280) assigned the Archaic materials of the Red River Army Depot study area to the La Harpe Aspect, one of whose three geographic subdivisions was a region including southeastern Oklahoma and northeastern Texas. Shafer (1973:20-27) has noted a significant difference in tool form variability between the La Harpe Archaic materials of the Red River Army Depot region, and those of central and southern east Texas. Story (1981:145) points out that the greater amount of harvestable nuts, presence of bison in the Late Archaic, and more abundant knappable stone resources may account for this difference. In any event, this period in northeastern Texas is still poorly defined and has been identified as a separate Study Unit within the Texas Resource Protection Planning Process (Brown et al. 1982:47).

The available data suggest that during Archaic times there was an adaptation to the post-Pleistocene environment along with a gradual subsistence orientation around local resource exploitation involving seasonal scheduling to maximize efficiency. Increased efficiency in the exploitation of plant and animal resources is inferred from a marked increased in the number of tool types as compared with earlier periods. Settlement appears to have shifted from the Paleo-Indian semi-nomadism to a seasonal-round pattern, and finally to sedentary, semipermanent Caddoan villages (Story 1976). Archaic sites in northeast Texas are typically small (1-4 acres) and usually lack pottery (Webb 1960:47).

Early Ceramic Period. Story (1981) has recently provided an overview of the prehistory of northeast Texas, emphasizing the developments from the late Archaic through Early Ceramic to Caddoan adaptations in the region including the Red River Army Depot. While the Archaic period has commonly been held to last until AD 800 or even 1000, there is increasing evidence of a transitional development from nonceramic hunting/gathering to ceramics and finally horticulture. Story (1981:145) has noted that ceramics that may date to about 200 BC have been found at the Resch site of northeastern Texas (Webb et al. 1969), and that a ceramic tradition is

used as the end of the Archaic period in the Texas state plan [Brown et al. 1982:43,51]).

Story (1981:146) has characterized the Early Ceramic period of the Red River Army Depot study region as being identified by the presence of grog (and occasionally bone)-tempered Williams Plain ware associated with early Caddoan developments in the north (as in the Harlan Phase in the Arkansas Valley). During the later part of this period it is also identified by mounds as identified in the Bellevue Phase in the Red River drainage in northwestern Louisiana and southwestern Arkansas. This transitional period has also been identified as terminal La Harpe, pre-Caddo Formative, post-Archaic Gibson, Woodland, or Transitional Stage in Texas, late Fourche Maline in Oklahoma, Bellevue and Hutt phases in Arkansas, and the Bellevue focus in Louisiana (Story 1981:145).

The lack of specific information about this period in Bowie County, and the area's proximity to the prehistoric remains of southeastern Oklahoma and southwestern Arkansas, have led the authors of this work to suggest that the Fourche Maline archeological model of adjacent Arkansas is appropriate for characterizing the Early Ceramic period in the study area. The Fourche Maline period (Table 2-2) was transitional between the Archaic and Post-Archaic periods and overlaps temporally with both stages, beginning between 1000 and 500 BC and lasting until approximately AD 900 (Schambach 1982). During its early stages it lacked the ceramic technologies representative of Archaic times; ceramics are associated with this tradition during its later development. Sites ranged from small, resource specific (hunting and gathering) upland camps to small and medium-size (2-10 acres) villages in the lowlands. Subsistence activities included exploitation of cultivated native plants, hunting, and gathering.

Late Prehistoric Period. The post-Archaic era in the vicinity of the Red River Army Depot is dominated by the Caddoan culture. There is strong evidence to suggest that the Caddo I period evolved locally out of

Fourche Maline-like Early Ceramic developments, through numerous incremental changes in artifact assemblages and in mortuary practices sometime between AD 850 to 950 (Story 1976, 1981). However, there are also indications that Caddo may have derived from the preceding Coles Creek period of the lower Mississippi valley (Louisiana State Historic Preservation Office 1981), some remnants of which are found in the Texarkana region. The current prevailing interpretation is that there were only regional influences rather than Caddoan origins from the Mississippi settlements west (Schambach and Early 1982). Suggested avenues of such trait introduction include communications up the Red River Valley from central Louisiana, from the Felsenthal Region (Schambach 1970), and from the Lower Arkansas Region.

Archeological evidence indicates that the Coles Creek period in general was a time of expansion based on a secure economy reliant on maize agriculture with continued dietary supplements from hunting and gathering. A dispersed settlement pattern of small village sites and seasonally occupied camps is indicated, as sites are generally located on natural stream levees (especially those along old cutoffs and inactive channels). Sites of this period are not likely, but could be found on the Depot; if present, they would be of critical scientific value.

Whether derived from Fourche Maline or Coles Creek roots, the emergence of the Caddoan culture with its sedentary villages and maize agriculture marks the end of the Archaic Period in northeast Texas. Pottery production and the introduction of the bow and arrow mark the beginning of the Post-Archaic period. This new "Post-Archaic" period began sometime between AD 800 and 1000 and ended with the beginning Historic Period in AD 1700.

Caddo I (AD 800-1200). Regional expressions of Caddo I include the Alto Focus of East Texas and western Louisiana and the Harlan Complex of eastern Oklahoma. The latter lies beyond the facility and will not be discussed. The Alto Focus is considered by Story (1972:63, 94) to

represent the earliest true Caddo cultural configuration and is estimated to begin about AD 700. The George C. Davis Site (41CE19), a mound center and associated village site situated on the Neches River in Cherokee County some 100 miles south of the Red River Army Depot, is the major Alto Focus site. Information from additional sites of this period is sparse. Generally, Alto Focus sites are located on sandy ridges and terraces close to water. The mound centers tend to occur in major river valleys, presumably for the accessibility of the riverine resources and transportation (Wyckoff 1971:54). Artifact types representative of the Alto Focus are listed in Table 2-2. Several classes of material goods indicate that the Alto Focus centers were participating in multi-regional trade/exchange networks.

Caddo II (AD 1200-1400). This phase marks the florescence of Caddoan culture and the maximum spatial distribution of related occupations. It also was the culmination of construction of mound centers and of participation in complex, exotic religious cults (Wyckoff 1971). The regional expression of this phase in the Texarkana area is the Haley Focus. Although the western boundary of this Focus extends into Texas, most sites assigned to it are found in Arkansas (Neitzel and Perry 1978) and Louisiana. Few non-mound habitation sites from the focus are known; most of the information about it has come from mound centers. Although some Haley mound centers are in association with large village sites, others show little indication of continuous or intensive occupation. One new feature of this phase is the appearance of nonmound cemeteries.

Caddo III (AD 1400-1500). Regional expressions of this period in the area of the Red River Army Depot are the McCurtain (upriver) and Texarkana (downriver) foci. This period is characterized by a reduction of mound building, an increase in Plains Indian influence, the abandonment of certain areas (South Sulphur River and Little Pine Creek basins), and the emergence of many regional variants (Doehner and Larson 1978:15). These changes represent a modification of the traditional Caddo religious, political, social, and perhaps economic base, and are the beginning of a trend towards decentralization.

Changes in climatic factors may have contributed to the cultural changes mentioned above (Doehner and Larson 1978:16). A change to a drier climate, or one in which rainfall was less predictable, could produce marked effects on an economy dependent on horticulture (Wyckoff 1971:118). Both mound centers and habitation sites have been documented for this period in the McCurtain Focus. McCurtain Focus mounds are generally small and low and were used for burial of the dead. Sites are usually on sandy terraces adjacent to major streams. Subsistence data are limited by the paucity of collected floral and faunal specimens from sites of this focus. Although agricultural activities have been documented at the Clement Site in Oklahoma, most sites of this focus yield only the remains of deer and small mammals, fresh water mussels and a variety of nuts (Doehner and Larson 1978:16). McCurtain Focus people appear to have been involved in regional trade networks.

Sites of the Caddoan III Texarkana Focus generally occur in the Red River Valley and its immediate tributaries in the vicinity of Texarkana and are represented primarily in the tupelo-gum-bald cypress faciation of the river valley and some tributary streams. Some are also present in the oak-pine country bordering these streams (Wyckoff 1971), and along the Sulphur and Saline rivers. Occupations were oriented toward riverine settings, and sites include mound centers and habitation areas in floodplains close to major streams, and on some high ridges and terraces bordering riverine valleys (Suhm, Krieger, and Jelks 1954). Remains of maize and beans attest to the farming orientation of these people, and charred pecans, mussel shell, and the remains of deer and fish provide evidence of hunting and gathering. Trade with adjacent groups is indicated.

Caddo IV (AD 1500-1700). The McCurtain and Texarkana foci persist into Caddo IV times in the Red River Army Depot study area and are complemented by the Belcher Focus there (Table 2-2). The Belcher Focus is a distinct cultural manifestation occurring in the Red River Valley of northwest Louisiana and southwest Arkansas, its northernmost extent lying

along the south edge of Texarkana, Texas. Belcher Focus sites consist primarily of villages and hamlets in the main Red River valley and appear to represent sedentary villages adjacent to mound centers. The mound centers were considered to be "community centers" by Webb (1959), who noted that settlements occurred on the natural levees in the floodplain and were usually parallel to a nearby stream course. These people were sedentary farmers (maize and beans), but riverine and terrestrial and animal hunting remains have also been recovered from sites of this period. Although most cultural material of this time is believed to be of indigenous origin, trade involvement and widespread contact may also be evident (Wyckoff 1971).

2.2.2 Ethnohistory

The final phase of the Caddo sequence is Caddo V (AD 1700-1835). It follows within historic times and is the only ethnographically documented culture in the vicinity of the facility.

Prior to AD 1700, European and/or Euroamerican contact with Caddoan-speaking groups was relatively limited. It is apparent that the DeSoto entrada of 1541 included portions of the area occupied by these people (Swanton 1942), and during the latter part of the 1600s such French explorers as LaSalle, Tonti, Casanas, d'Iberville, and Bienville traversed the general study area and reported on these people. As these excursions prior to AD 1700 were designed to explore, note available resources, gain information on the native people, and to avoid economic ties, it was not until after AD 1700 and the beginnings of French and Spanish colonization that a fairly continuous record of interaction with these people is available (Wyckoff 1971). During the last decades of the nineteenth century and throughout the eighteenth century there was European and Euroamerican interaction in the form of sustained trade and increasing governmental control.

When the Euroamericans did establish relationships with the Caddoans, they found a Caddoan Confederation with a number of tribal affiliations.

The Kadohadacho or Caddo proper were in the area of the modern Depot. When this tribe was first encountered by LaSalle's companions in 1687, they were residing just above the "big bend" of the Red River in the area that is now southwest Arkansas, southwest Oklahoma, northwest Louisiana and northeast Texas (Swanton 1942). When la Harpe visited them in 1719, they lived on the north bank of the Red River above the mouth of Little River (approximately 30 miles northeast of the facility). Archeological evidence of these villages is almost nonexistent, though Williams (1961) has proposed that the name "Little River Phase" be used for the villages of the Kadohadacho groups in the "big bend" area of the Red River when they are found.

The increased interaction between Caddoans and Europeans resulted in a local subsistence system based largely on trade, although small-scale agriculture and hunting/gathering continued. Various trade commodities such as hides, bowwood (Osage orange [Toxylon pomiferum]), livestock, slaves, and European goods were valued trade items, although salt was probably the most important item of trade (Gregory 1980). Most sites of this phase appear to reflect a small population, perhaps organized on a band level (much less complex than previous prehistoric Caddoan organization). Sites are generally hamlets or villages a few acres in size with an associated cemetery and on a floodplain. There is ample historic documentation that the Caddo V settlement pattern at European contact was one of the dispersed farmstead or hamlet, vacant ceremonial-community center type (Waddell and Blaylock 1981). The Caddo V phase occupation of northeast Texas ended in 1835 when the Indians sold their lands to the government and were moved further west into Texas.

2.2.3 History

European Exploration and Early Settlement (AD 1542-1719). Initial European contact with northeast Texas occurred in 1542 when Hernando DeSoto's expedition reached the Red River in the vicinity of Shreveport in search of an overland route to Mexico.

The French expedition under LaSalle and Tonti in 1683 was the next to reach this area of the Red River. LaSalle had planned to establish a line of forts from Canada to the Gulf of Mexico, and claimed all territory drained by tributaries of the Mississippi River. In 1687 on their return to Illinois, the La Salle expedition camped just south of the Red River upstream from the "big bend" (approximately 40 miles east of the facility area) where they reported a Kadohadacho village (Swanton 1946:141). Through the explorations of LaSalle, colonies and trading posts were established in the Mississippi Valley by the French (Chandler and Howe 1939). However, their efforts at settlement and exploration in the area of the Red River and Texas met with failure and tragedy (Lutz 1965).

In 1690, due to fear of French intrusion and settlement, the Spanish commissioned Teron, Governor of Coahuila, to establish missions among the Kadohadacho (Caddo) tribes. He mapped villages of the Kadohadacho area and recommended that missions be established here. By 1694, however, this project was abandoned due to increasing hostilities of the local inhabitants and very little was accomplished (Lutz 1965).

French activity increased and la Harpe was commissioned by the Council of Louisiana to establish a post. On April 1, 1719, la Harpe and his companions reached the confluence of the Sulphur (Bear) and the Red rivers. Following the advice of the local Indian groups, la Harpe had decided to go west along the Sulphur River with a party of Kadohadacho Indians to the "portage of the Nassonites," an upper Nasoni village, and then overland (north) to his destination on the Red River to stablish the Nassonite Post along the south edge of the Red River near present Roseborough Lake, located about 15 miles north of the facility (the location of the post, the Roseborough Lake Site [41 BW 5] has been identified through archeological field work)(Wyckoff 1971). This route (Figure 2-1) had been used by Caddo Indian groups prior to the arrival of European explorers in the area, and la Harpe had estimated that this route would be five leagues (15 miles) by water and 10 leagues (30 miles)

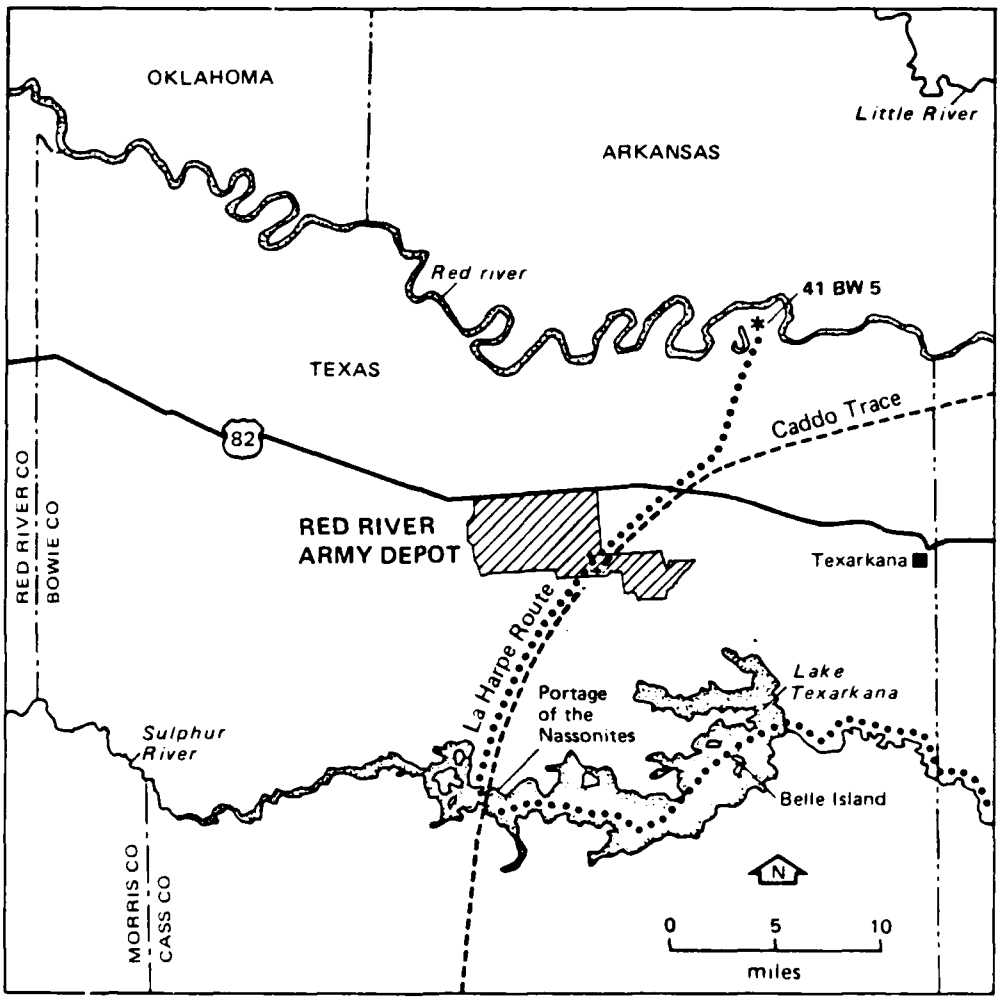


Figure 2-1. MAP SHOWING LA HARPE'S ROUTE UP THE SULPHUR RIVER (Bear River) AND OVERLAND TO THE SITE OF HIS NASSONITE POST (Site 41 BW 5); AFTER MIROIR, et al. (1973)

by land (Smith 1958). The la Harpe route traverses the western portion of the facility and is not presently recorded as a cultural resource. Another route, along the west edge of present Texarkana, has been suggested by Wedel (1978), but does not cross the facility acreage.

French trader aggressiveness and settlement in the area increased Spanish desire to occupy Texas. The Spanish authorities contemplated driving the French from this part of the Kadohadacho area and erecting a Spanish post there, but did not do so because of the risk of bringing down the wrath of the Indian tribes (Bolton 1915).

Colonial Period (AD 1719-1836)

French colonies and trading posts were established in the general study region and trade between the French and the Kadohadacho tribes was conducted, but no permanent French settlement was established in the area.

Spanish settlement in Texas, east of El Paso, began in 1690 with the founding of two missions in eastern Texas (Gilmore 1978). Mission land grants were made and numerous missions and towns were established in south, south-central, and eastern Texas, but none was as far north as the Red River Army Depot study region. These mission land grants, however, were made in composition and not in fee simple and after 1749 the lands reverted to the crown. During most of the time Spain held Texas, foreign settlement and land acquisition were not permitted. The 1821 Plan of Iquala proclaimed Mexico free and in possession of Texas.

A new 1825 Mexican colonization law allowed any foreigner desiring land in Texas to register at the local ayuntamiento (municipal government) as an empresario, and thus to receive five leagues of land plus five labors of land (23,025 acres) for each 100 families brought in (Miller 1972). On March 9, 1826, Arthur G. Wavell, an Englishman, secured a contract for 500 families to be located on a grant that included all of present Lamar, Red River, and Bowie counties, and parts of Fannin and Hunt counties, Texas, and Miller County, Arkansas. He

proposed to settle Catholics, natives of Ireland, Scotland, and a few from England, all of whom would be "agriculturalists," on the grant. Wavell had never seen the obtained land grant and, in the process of obtaining information regarding the area, learned that perhaps 400 families had already settled there. Nevertheless, the area was finally settled by the Wavell colonization effort, and the 1830 registration in Wavell's Colony listed 625 people (Lutz 1965). Contrary to Wavell's initial plans, however, the settlers were mainly Protestant Anglo-Americans and not Catholic Europeans. Due to confusions resulting from land disputed between the Mexican government and Governor Polk of Arkansas, who had claimed nearly all this territory for the United States, no land titles were issued to these actual settlers down to the time of the Texas Revolution and Texas independence from Mexico, declared on March 2, 1836, and won on the battlefield of San Jacinto on April 21, 1836 (Barker 1944; Miller 1972).

Settlement Period (AD 1836-1940). By 1840, the eastern portion of Red River County was sufficiently populated to desire its own county government. On December 17, 1840 the Congress of the Republic of Texas divided Red River County, creating Lamar County on the west and Bowie County on the east.

Homestead Claims (AD 1838-1910). During the middle and late nineteenth century, Bowie County population increased quickly, since Congress had provided that every man with a family who would move to Texas could have land if he would reside there and perform the duties of a citizen for three years. To obtain the land, the settler had to apply to the County Board of Land Commissioners for a conditional certificate for the acreage he was entitled to settle. After fulfilling the conditions of the certificate, each settler was issued an unconditional certificate that, when delivered to the county supervisor, resulted in a formal survey of the required number of acres (including improvements) out of the public domain (Lutz 1965). The certificate, along with the surveyor's notes, was then sent to the General Land Office in Austin, Texas, and the Governor issued a land patent to the settler.

Table 2-3 lists the original land patents in the Red River Army Depot acreage. The land patent dates range from 1844 to 1925 with an average date of 1862. There are 35 grants within the acreage, all settled as homesteads. Table 2-4 lists subsequent tract subdivisions within these original patents. One of these original patents was a 640 acre tract patented in 1854 by Hardin R. Runnels and is located in Area E (igloo ammo storage area)(see Section 4.0). The Runnels home was built in this area in 1853 and was destroyed by fire in 1914. Runnels served as the fifth Governor of the State of Texas (1857-1859) and upon his death in 1873 was buried in the Runnels family cemetery that remains in this area today. His body was removed to the State Cemetery in Austin in the early 1930s. A granite marker, erected by the State of Texas in 1936, marks the house site location on the depot.

Since the beginning of settlement, the interests of Bowie County have been almost entirely agricultural (Chandler and Howe 1939). The first Euroamerican crops grown along the Red River were corn and other vegetables, followed somewhat later by cotton and wheat. Large cotton plantations were cultivated along the Red River. Hogs and cattle were raised and pastured on the open prairies and forest lands. Peaches, plums, pears, grapes, and other small fruits, berries, and vegetables are grown for home consumption and to supply local markets. The railroads made better markets possible, encouraged more farming, and resulted in a general increase in settlement.

Military Period (AD 1940-Present). In 1940 and 1941, the area currently occupied by the facility was obtained by the U. S. Government. Structures and production facilities built during this period are present today and are fully documented by plans and drawings maintained by the U. S. Army.

2.3 ARCHEOLOGICAL RESEARCH DIRECTIONS

Within the Texas State Heritage Conservation Plan (Brown et al. 1982), the area of the Red River Army Depot is within the statewide

Table 2 3 STATE ABSTRACTS OF BOWIE COUNTY TO AUGUST 31, 1941, FOR PROPERTIES WITHIN THE RED RIVER ARMY DEPOT

Abst. No.	Original Grantee	Cert No	Patentee	Date of Patent	PATENT No.	PATENT Vol.	DESCRIPTION Survey	DESCRIPTION Block	Acres	POSITION IN ADJOINING COUNTY Acres	POSITION IN ADJOINING COUNTY County	Class	File No.	Remarks
1	Aikin, Collin M.	42	Collin M. Aiken	5 23, 1855	895	9			2637	1318	Red River	R.R. 1st	123	
25	Ball, John	617	John Ball	10 8, 1844	299	2			1476.13			R.R. 1st	147	
839	Bartlett, R. A.	358 974	R. A. Bartlett	11 6, 1925	425	27A	SE ¼ 36	MEP&P	156.3			School	55107	
16	Benningfield, H. P.	313	H. P. Benningfield	10 7, 1844	285	2			1280			R.R. 1st	29	
108	Collum, Chas.(a)	50	Chas. Collum	9 30, 1844	270	2			4605.50			R.R. 1st	101	
115	Collum, John(a)		Hrs. John Collum	1 31, 1849	804	6			1872.32			Bowie 1st	54-½	
991	Crump, C. C.	358	C. C. Crump	12 19, 1912	385	45	W ½ of W ¼ 36	MEP&P	80			School	117925	
168	Davis, Julia	169	Julia Davis	2 4, 1850	342	6			320			Bowie 3rd	98	
142	Dunn, Josiah G.	82	Josiah G. Dunn	12 3, 1857	862	12			490.61			Bowie 1st	164	
191	Elliott, John W. F.	307 65	John W. F. Elliott	9-11, 1872	245	8			640			R.R. 2nd	200	
195	Elliott, S. D.		Samuel D. Elliott	12 3, 1872	280	40			313			Bowie 3rd	732	
275	Hamilton, Robt. H.	187	Robt. H. Hamilton	11 15, 1854	604	9			320			R.R. 3rd	311	
269	Harper, James	602	James Harper	11 9, 1854	318	11			3090.87			R.R. 1st	527	
257	Hawkins, Wm. B	325	Wm. B. Hawkins	1 17, 1849	245	8			2556.27			R.R. 1st	318	

Table 2 3. STATE ABSTRACTS OF BOWIE COUNTY TO AUGUST 31, 1941, FOR PROPERTIES WITHIN THE RED RIVER ARMY DEPOT (continued)

Abst No	Original Grantee	Cert No.	Patentee	Date of Patent	PATENT No.	PATENT Vol.	DESCRIPTION Survey	DESCRIPTION Block	Acres	POSITION IN ADJOINING COUNTY Acres	POSITION IN ADJOINING COUNTY County	Class	File No.	Remarks
263	Herring, John S	31	John S. Herring	10 15, 1844	311	2			3771.05			R.R. 1st	144	
349	Lindsey, Robert M.	105	Robert M. Lindsey	7-3, 1860	638	5			640			Bowie 3rd	99	
404	McAdams, Bethany	134	Bethany McAdams	12 18, 1851	806	6			320			Bowie 3rd	132	
438	M.E.P.&P.[b] RR. Co.	20/ 112	James G. Holloway	12 14, 1876	357	11			24.20			Bowie Scrip	308	
451	Moore, Jesse						22		160			School	749	Forfeited
381	Morris, Daniel	1	Daniel Morris	10-8, 1844	295	2			2380.69			R.R. 1st	141	
461	Paxton, John	215	John P[illegible]xton	9 18, 1844	245	2			4605.50			R.R. 1st	24	
497	Reed, John A.	79	Levi M. Rice	5-15, 1848	440	7			4428.40			R.R. 1st	195	
512	Runnels, H. R.	477	H. R. Runnels	2-11, 1854	520	2			640			Bowie Scrip	4	
527	Schocklie,[c] Wm. D.	438	Wm. D. Schocklie	10-8, 1844	298	2			885.82			R.R. 1st	153	
546	Seidikum, F.	68	H. R. Runnels	2-23, 1859	150	4			240			Bowie Scrip	13	
520	Sithe, Francis[d]	334	Joseph Rowe	10 23, 1846	202	3			3582.22			Bowie 1st	47	
722	Smelser, J. H		J. H. Smelser	1-10, 1882	96	1	NE ¼ 36	MEP&P	160			School	3849	
939	Smith, John M.	358	P. M. Musgrove	12 6, 1906	83	33	Frac 36	MEP&P	80			School	76658	
794	Smithson, John		John Smithson	3 28, 1896	435	28			94.29			Bowie Pre.	204	

Table 2 3 STATE ABSTRACTS OF BOWIE COUNTY TO AUGUST 31, 1941, FOR PROPERTIES WITHIN THE RED RIVER ARMY DEPOT (concluded)

Abst. No.	Original Grantee	Cert. No.	Patentee	Date of Patent	PATENT No.	PATENT Vol.	DESCRIPTION Survey	DESCRIPTION Block	Acres	POSITION IN ADJOINING COUNTY Acres	POSITION IN ADJOINING COUNTY County	Class	File No.	Remarks
565	Thompson, Wm. F.	324	Wm. F. Thompson	11 20, 1844	344	2			4228.40			Bowie 1st	22	
764	Tilson, M. D.		M. D. Tilson	5 2, 1888	624	10			41.60			Bowie Scrip	416	
639	White, Durant H.	307 87	Durant H. White	12 6, 1872	146	19			838.44			Bowie 1st	24	
694	Young, William	3904	Ward Taylor	12-1, 1853	692	6			960			Bowie Bty.	8	

[a] Collom, Charles and Jonathan are spelled Collum in the State Abstracts and spelled Collom on Patent Land map.

[b] Abstract information for two additional holdings by this grantee within the facility could not be located.

[c] Schocklie spelling used in State Abstracts and is spelled Shockley on Patent Land map.

[d] Sythe spelled Sithe in State Abstracts and Sythe on Patent Land map.

Table 2-4. TRACT NUMBERS WITHIN HEADRIGHT SURVEYS ON THE RED RIVER ARMY DEPOT

Headright Survey	Abst. No.	Tract Numbers of Survey Within Facility Boundary
Akin, Collin M.	1	534, 535, 536, 545, 546, 547, 586, 588, 590, 591, 592, 593
Ball, John	25	521, 559, 560, 561, 568
Bartlet, R.A.	839	528, 530, 532
Benningfield, H.P.	16	190, 219, 224, 225, 332, 333, 337, 338, 363, 364, 365, 366, 367, 368, 371
Collom, Charles	108	424, 501, 538, 631, 632
Collom, Jonathan	115	502, 503, 625
Crump, C.C.	991	523, 525, 634
Davis, J.	168	148, 150, 360, 362, 395, 396
Dunn, J.G.	142	146, 392, 393
Elliot, J.W.F.	191	140, 141, 142, 157, 158, 160, 162, 163, 164, 165, 193, 327
Elliott, S.D.	195	146, 147, 148, 191, 192, 394
Hamilton, Robt. H.	275	359, 397, 398
Harper, James	269	432, 540, 542, 543, 544, 577, 579, 581, 582, 583, 584
Hawkins, Wm. B.	257	642
Herring, John S.	263	334, 336, 343, 344, 700, 701, 702, 703, 704, 705
Lindsey, Robt. M.	349	404, 462, 463, 464, 465, 466, 467, 625
M.E.P.&P. RR. Co.	438	155
	?	505, 506, 507, 508, 706
McAdams, Bethany	404	400, 401, 402, 403, 404, 405
Moore, J.L.	451	187, 324, 325, 328, 329
Morris, Daniel	381	707, 708, 709, 710, 711, 712
Paxton, John	461	504
Reed, John A.	497	593, 620, 621, 622, 623
Runnels, H.R.	512	574, 593, 594, 595, 596
Seidikum, F.C.	546	548, 549, 575, 576

Table 2-4. TRACT NUMBERS WITHIN HEADRIGHT SURVEYS ON THE RED RIVER ARMY DEPOT (concluded)

Headright Survey	Abst. No.	Tract Numbers of Survey Within Facility Boundary
Shockley, W.D.	527	124, 125, 145, 152, 153, 322, 323, 324, 325
Smelser, J.H.	722	529, 531
Smith, J.M.		
Smith, John M.	939	525
Smithson, John	794	220, 467
Sythe, Francis	520	550, 551, 552, 553, 554, 555, 556, 557, 558, 569, 570, 571, 572, 573, 574, 597, 598, 599, 600, 601, 602, 603, 604, 605, 607, 608, 609, 610, 611, 612, 613, 614, 616, 617, 618, 633, 635, 636, 637, 638, 639, 640
Thompson, W.F.	565	509, 510, 511, 512, 513, 516, 517, 518, 521, 641
Tilson, M.D.	764	143
White, Durant H.		
Williams, N.		
Young, Wm.	694	115, 116, 119, 188

Paleoindian, Northeast Texas Archaic, Northeast Texas Late Prehistoric, Northeast Early Historic Culture, Caddoan Language Groups, Early French Settlement, Upper-South Anglo (Period Two), Afro-American-Texan, and East Contemporary study units. Of these study units, only the Northeast Texas Late Prehistoric unit has been outlined in much detail (Killen, Simons, and Wulfkuhle 1982) but does include a list of proposed research topics that are pertinert to the Red River Army Depot lands. It is noteworthy that this discussion of the Late Prehistoric resources suggests that the study unit be subdivided along drainage lines within Bowie County--the area of the Depot thus could include archeological information critical to understanding the dynamics of either or both the Red and Sulphur subunits as well as the interaction between them.

The Arkansas State Plan (Davis 1982) is also pertinent to the understanding of prehistoric and historic cultural processes and adaptations of the area of the Red River Army Depot, particularly since the project area is included within the Great Bend Archeological region for which Arkansas study units have been developed (Schambach and Early 1982).

2.3.1 Regional Concerns

The major regional archeological concern for the project area is the need to establish adequate spatial, temporal, and cultural parameters for extinct cultural systems. To date, a broad culture history of the region has been developed from which a pattern of regional prehistoric society can be conceptualized. However, detailed definition of spatial, temporal, and cultural parameters have been mainly confined to the Late Prehistoric period in Texas (Killen, Simons, and Wulfkuhle 1982), and to the Woodland (circa 1000 BC-800) and Mississippian (circa AD 800-1700) periods in Arkansas where ceramic typologies have provided a higher degree of temporal control (Schambach and Early 1982).

Killen, Simons, and Wulfkuhle (1982:237) have noted that within the Late Prehistoric study subunits (and by extension, all local preservation

planning units and subunits) there is a need to develop a regional overview of archeological chronologies and resources; better identifications and evaluations of known resources and their collections; and the development of locally specific research directions. The range of research topics proposed by Killen, Simons, and Wulfkuhle (1982:226) for the Late Prehistoric study unit are applicable to any prehistoric Red River Army Depot resources:

- Why were sites established where they were?
- What are the major ecological catchment areas and how are they related to settlement patterns?
- Are there seemingly "blank" areas without sites, and if so, why do they occur? Do they reflect prehistoric settlement patterns, or the lack of appropriate preservation contexts?
- How did cultural patterns and changes relate to environmental conditions?

Critical information about the adaptations of the Early Ceramic period may be retained within the Red River Army Depot, including datable evidence of early ceramics, general subsistence patterns, lithic technologies, or technological ties to the north or south. Late Prehistoric sites may be found that retain information about the development of horticulture, environmental stresses (e.g., prehistoric drought), major cultigens, seasonal variation in corn production, the reliance on horticulture vs. gathering, trade relations, sociopolitical developments, physical traits (e.g., cranial deformation), and/or the relationship of mound to non-mound sites.

The Arkansas State Plan (Schambach and Early 1982) notes that there is a need for the definition of the complete artifact assemblage for each study unit of the Great Bend archeological region. Key diagnostic artifacts are well defined for identifying particular cultural systems, but the range of material remains from any particular cultural unit is still poorly documented. Further, there is a need for definition of absolute dates for each study unit. One of the highest priorities of any

research conducted on the region is to increase chronological control, particularly in Paleo-Indian and in Fourche Maline cultural units. Finally, there is a need to define the spatial boundaries of each of the study units of the region. The areal extent and distribution of components of the study units are important for such studies as settlement patterns, adaptation strategies, and ceramic base.

2.3.2 Installation-Specific Archeological Research Directions

There is one known component from the early Paleo-Indian Period (circa 10,000-8000 BC) within the Red River Army Depot overview study region (a 100-mile radius around the facility). The Montgomery Site, located just across the Arkansas state line in Springhill, consists of an early light density Paleo-Indian component and a late Caddo component in an upland setting. Schambach suggests the low density at known Paleo-Indian sites in the uplands reflects the specialized use of the uplands for hunting and gathering while the major sites are in the valley. Presence of a Paleo-Indian component within the facility could provide information supporting or disproving this hypothesis (Schambach and Early 1982).

Components from the early Archaic Period (circa 6000-1000 BC), which is generally interpreted as having a strong riverine adaptation, could be found in the Depot uplands representing specialized activity sites. Such an early Archaic component could be an important element in regional Archaic studies. Further, any Depot remnant of the late Archaic period (circa 2000-1000 BC), which is the "weakest and haziest period in the southwest Arkansas [and northeast Texas] sequence" (Schambach and Early 1982), would be important.

Relationships among the Early Ceramic period manifestations are complex; any sites that hold information about the inter- or intraregional relationships of this horticultural and sociopolitical transition would be scientifically significant. Burials associated with sites of this (or any other) period would be of concern to modern Native

Americans. Such sites could occur on the Depot, and could provide data useful about the Caddoan developments in the Great Bend archeological region.

Another major research interest that might be addressable with Depot data concerns the Caddoan settlement pattern. Historic and ethnohistoric accounts indicate that during the contact historic period, the Caddoan pattern was one of a plaza-like ceremonial center usually surrounded by mounds, with a small resident caretaker population and associated dispersed farmsteads or hamlet. Two research questions arise from this model. First, how far back in time can this pattern be extended? Is there a transition from the Early Ceramic (Fourche Maline) settlement pattern of small to medium sized villages? Second, what are the other attributes of the Caddoan settlement pattern other than the plaza-like center and dispersed farmsteads? It is expected that there should be a wide range of specialized activity sites in conjunction with the basic pattern. Sites of this time period are known to occur in the vicinity of the Depot and there may be contemporary components on the facility itself.

There is only one known Colonial Tradition period component in proximity to the project area: the Roseborough Lake Site (41 BW 5), some 15 miles north of the AAP. Miroir et al. (1973) have suggested that this site may be the location of the Nassonite Post established by the French trader Bernard de la Harpe in 1719. Little else is known of French, Spanish, or Mexican cultural activities in this area. As a result, a site in the project area with one of these components could provide information to address any of the general research hypotheses. The same would be true for any site with a component from the Homestead Claims period (AD 1836-1910). Further, historic accounts of these two periods could be used to formulate specific hypotheses concerning subsistence, settlement, and sociopolitical organization that could be tested in the field.

The American Settlement period represents the best known historic study period, as there are numerous documentary sources available. Further, sites with components from this period are present throughout the Great Bend archeological region. The investigation of these sites through both the study of existing historical documentation and through oral histories, combined with field investigation, should provide valuable comparative data collections (artifactual and literal) that will prove useful in the future temporal identification and designation of sites of this time when encountered during actual on-the-ground survey.

Additional installation-specific archeological research directions may be provided to facility personnel by the Texas State Historic Preservation Office, and consulting the appropriate RP3 docmuents.

3.0

AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

The present condition of archeological sites is determined primarily by the nature of the topographic and geomorphic situation in which they are located and by the effects of natural forces, especially erosion and associated deposition, upon that particular environmental locale.

Approximately 20 percent (3816 acres) of the facility acreage consists of nearly level to very gently sloping upland surfaces. This area lies along the north edge of the acreage. Erosion in this area would be minimal and, subsequently, unlikely to be affected by sediment deposition. It is probable that any cultural material present in this area would be located on or very near the present surface. The area has been repeatedly disturbed by deforestation, plowing, and an on-going silvicultural program and the potential for disturbance of the upper two feet of soil deposits is very great. The B soil horizon in this area extends to a depth of about 12 inches and has probably been highly mixed. These soils are of medium to high acidity and little or no preservation of bone (or of other perishables) is expected.

This area, while having a very high potential for recovery of archeological remains dating from all identified culture periods, has little potential for site preservation due to the absence of an affirmative depositional environment combined with modern land-use practices. It is doubtful that any significant, intact prehistoric sites remain there; historic materials will be limited to surface manifestations.

The remainder of the facility acreage (about 15,265 acres) is characterized by gently sloping, moderately dissected surfaces, although some nearly level ridge tops flank the major drainages and floodplains. The upper areas of these surfaces have also been subjected to deforestation, plowing, and the on-going silvicultural program. Slope angles vary and downslope erosion ranges from minimal on the gently sloping surfaces to moderate on the steeper slopes. Inspection of the U. S. Geological Survey New Boston and Texarkana 15 min. quads suggests that severe erosion does not occur there. Although this area has a very high potential to yield cultural material, it is likely that due to soil disturbances only the deepest cultural features will remain intact.

The floodplains of Big Creek, Rock Creek, an unnamed perennial tributary of Rock Creek, Caney Creek and its intermittent tributaries, and Elliott Creek, have the highest potential for preservation of cultural remains due to continual sediment deposition from the creek and colluviation from downslope erosion of the uplands. Remains of all identified culture groups in the vicinity of the facility may be expected to occur in the floodplains. However, although sedimentation in this zone provides an excellent setting for preservation, the probability that permanent prehistoric and/or historic sites are actually located there is relatively low due to the area's unsuitability for year-round habitation, the result of seasonal inundation from flooding. Seasonally occupied hamlets or farmsteads (post-Archaic) and seasonal resource-specific Archaic camps are thought most likely for the zone.

3.2 HISTORIC AND RECENT LAND USE PATTERNS

Initial deforestation of the present facility acreage presumably began immediately following settlement in the early to mid-nineteenth century and is considered the first substantial ground-disturbing activity there. As this was accomplished primarily by burning (versus bulldozing), subsurface disturbances would be relatively shallow and probably confined to the upper 12 to 15 inches of soil deposits. Tree

removal associated with facility construction in 1941-1942 probably had more impact and possibly disturbed the upper 18 to 24 inches of soil as clearing was accomplished mechanically. Figure 3-1 depicts cleared or cultivated areas in 1953 and is thought to be representative of cleared areas at the time of government acquisition in 1940-1941. Approximately 45 percent (8586 acres) of the acreage had been cleared by that time.

Most of the acreage has probably been subjected to plowing, beginning during the Settlement Period (starting AD 1836) and continuing to the time of government real estate acquisition in 1940-1941. Deep plowing is not known to have taken place and it is estimated that only the upper 12 to 15 inches of soil deposits have been disturbed by plowing.

Several types of surface disturbance are associated with facility construction or resulted from post-construction activities. Building construction, roads, railroads, and pipelines have highly impacted their immediate surroundings or rights-of-way, and disturbance in these areas is considered to be 100 percent. Ammunition storage area construction also resulted in extensive disturbance due to the safety need to cover the storage igloos with a layer of dirt. This was accomplished by bulldozer and drag line, and during the operation dirt from surrounding areas was scraped onto the igloos.

Other ground disturbing activities include many miles of disced firelanes, roadside ditches, drainage channels, and the flooding of Caney and Elliott Creek Reservoirs (facility water source). Disturbances following facility construction include the silvicultural program, munitions testing grounds, and disposal or landfill sites.

Primary land use patterns that have affected cultural resources are building construction, ammunition storage construction, and silviculture. Table 3-1 indicates that approximately 5622 acres have been disturbed by facility construction and operation. These disturbances are depicted in Figure 3-2. Note on Figure 3-2 that all disturbances are keyed as 100

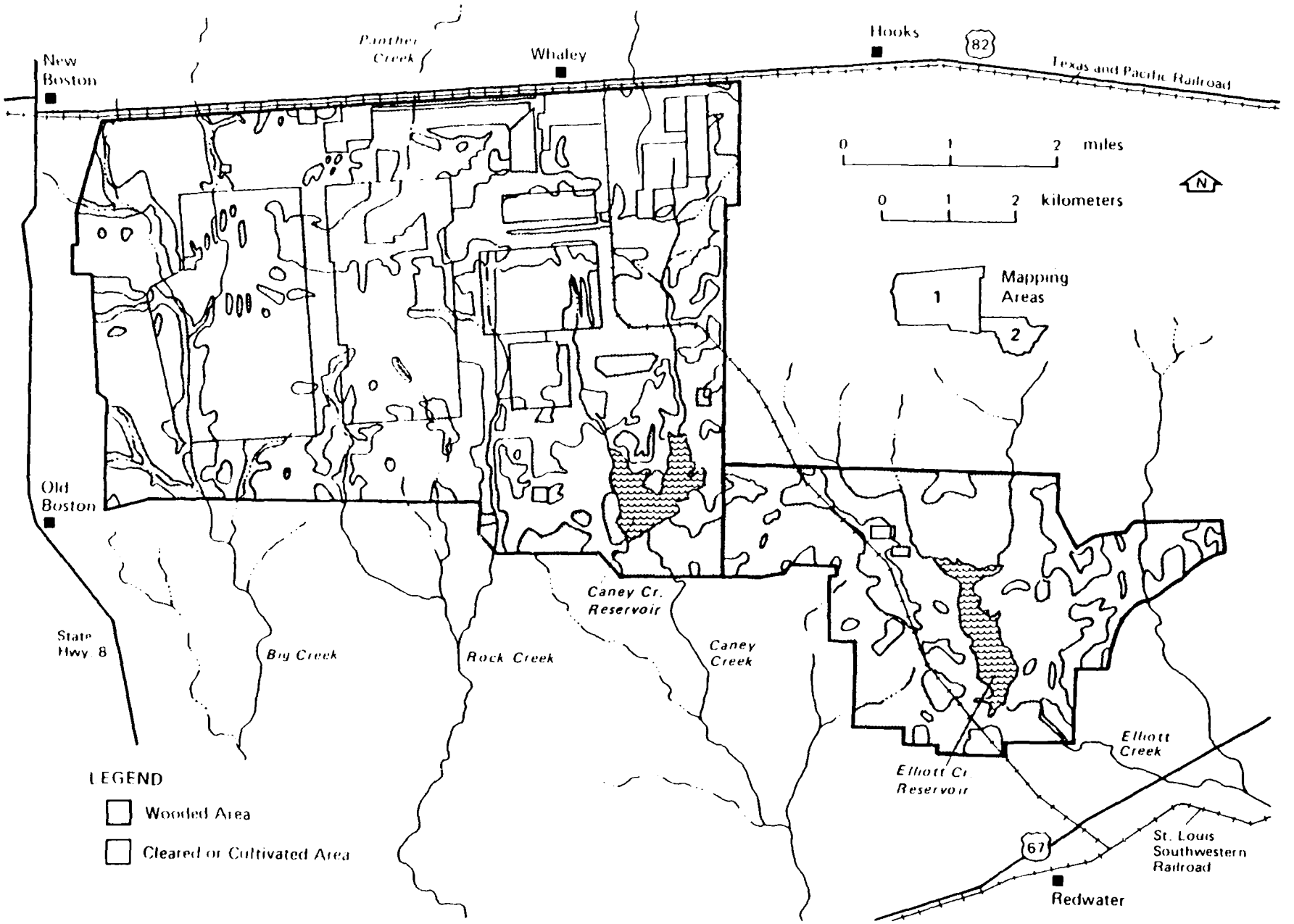


Figure 3 1. MAP DEPICTING CLEARED AND WOODED AREAS ON THE RED RIVER ARMY DEPOT IN 1953

Table 3 1 A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE RED RIVER ARMY DEPOT

GDA No [a]	Type of Disturbance	Date Constructed (yr)	Reference	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[b]	Ratio of Disturbed to Total Area	Location of Disturbed Area						
							UTM		Legal Reference[c]			USGS Quad Map[d]	Coincidental Sites
							Northing	Easting	Township	Range	Section		
1	Sewage disposal plant	1941 1942	General Site Map Office of Depot Engineer	7	6 10	10:10				--		N155U	-
2	Hazardous Waste Landfill	Pre 1978 Active	Harland Bartholomew and Associates 1978	2 5	10-15	10:10				--		N155U	-
3	Ammo and small arms demilitarization	1941 1942	AS#1	15	0.5-3	10:10				--		N155U	-
4	Ammo and small arms demilitarization	1941 1942	AS#1	80	0.5 3	10:10				--		N155U	-
5	Scrap lumber landfill site (#3)	Active	AS#2	10	8 10	10:10				--		N155U	-
6	Deport golf course		AS#1	65	0.5-1	5:10				--		N155U	-
7	Headquarters and utilities	1941 1942	AS#1	150	3-6	10:10				--		N155U	-
8	General Supply, Salvage and Maintenance Areas	1941 1942	AS#1	300	3 6	10:10				--		N155U	-
9	Standard Magazine Area	1941 1942	AS#1	115	6 8	10:10				--		N155U	

Table 3 1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE RED RIVER ARMY DEPOT (continued)

GDA No.[a]	Type of Disturbance	Date Conducted (yr)	Reference	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[b]	Ratio of Disturbed to Total Area	Location of Disturbed Area						
							UTM		Legal Reference[c]			USGS Quad Map[d]	Coincidental Sites
							Northing	Easting	Township	Range	Section		
10	Igloo Ammo Storage (Areas A, B, and C)	1941 1942	AS#1	1890	6 10	10:10						N155U	
11	Igloo Ammo Storage (Areas D, E, and F)	1941 1942	AS#1	1625	6-10	10:10						N155U	
12	Igloo Ammo Storage (Areas G)	1941-1942	AS#1	530	6-10	10:10						N155U	
13	Igloo Ammo Storage (Areas H)	1941-1942	AS#1	160	6-10	10:10						N155U	
14	Ammo Renovation and Demilitarization (Area K)	1941-1942	AS#1	90	4-5	10:10						N155U	
15	Pistol Range	Post 1955	AS#1	3	0.5-3	3:10						N155U	
16	Demolition Area	Active	AS#1	20	3-6	8:10						N155U	
17	Caney Creek Reservoir	1941 1942	AS#1	200	10-15	10:10						N155U	
18	St. Louis Southwestern RR line	Post 1904	USGS 1904 1906 New Boston 15' quad	45	3 6	10:10						N155U	
19	Rifle range	Post 1955	AS#1	16	0.5 2	2:10						N155U	

Table 3-1 A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE RED RIVER ARMY DEPOT (concluded)

GDA No.[a]	Type of Disturbance	Date Conducted (yr)	Reference	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[b]	Ratio of Disturbed to Total Area	Location of Disturbed Area						
							UTM		Legal Reference[c]				
							Northing	Easting	Township	Range	Section	USGS Quad Map[d]	Coincidental Sites
20	Grenade range	Post 1955	AS#1	9	0.5-3	5:10						N155U	
21	16 and 18 inch diameter water lines	1941-1942	Clifford S. Nakata and Associates 1980	65	4-8	10:10						N155U	
22	Elliott Creek Reservoir	1941 1942	AS#1	225	10-15	10:10						N155U	

[a] Ground Disturbance Areas (GDAs) as mapped in Figure 3-1.
[b] Depth determination based on relief in the given area.
[c] Township/range/section not applicable in this part of Texas
[d] N155U = USGS New Boston, TX, 15 min. sheet (1955)

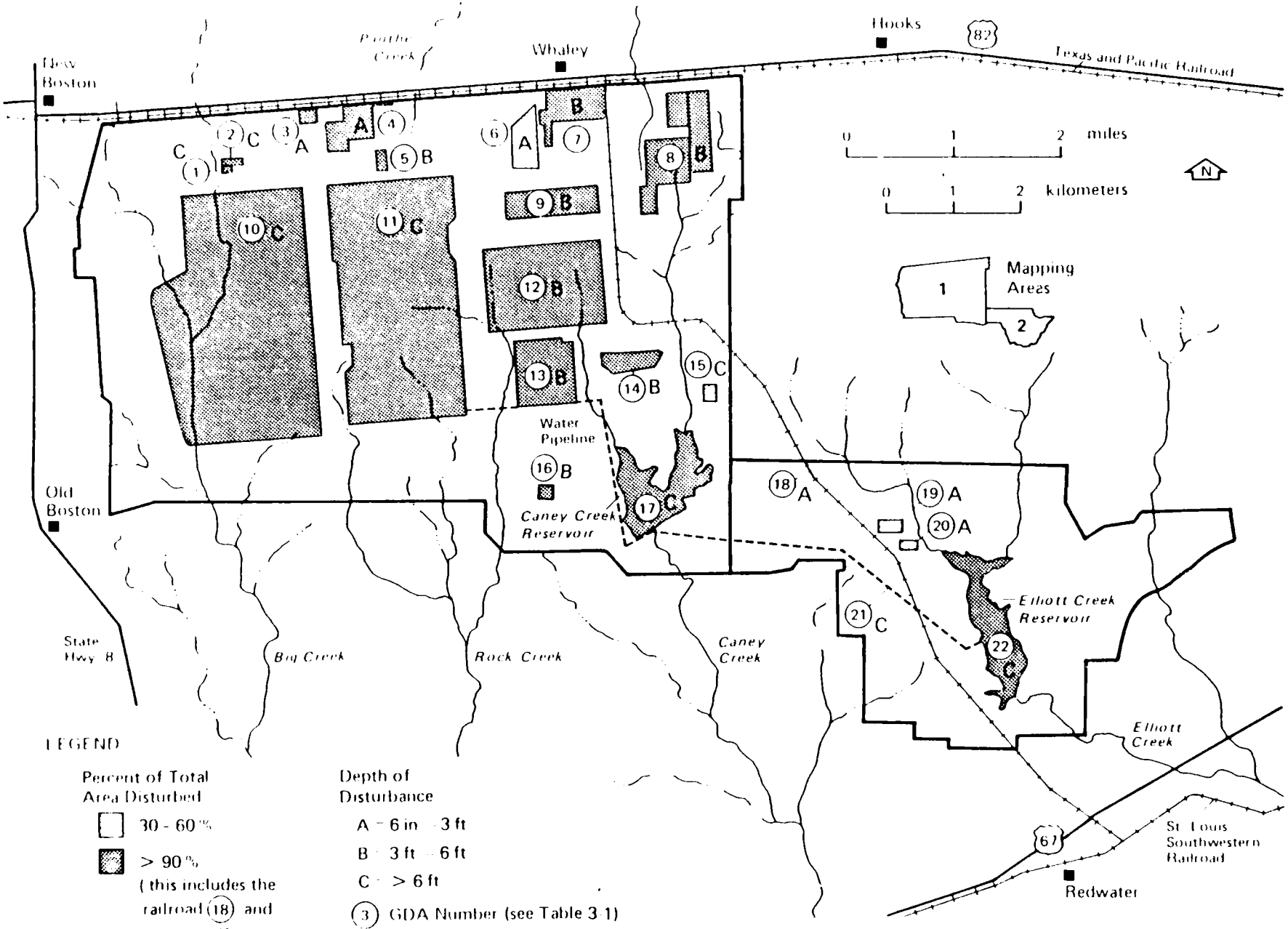


Figure 3-2. MAP OF AREAS OF HISTORIC AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE RED RIVER ARMY DEPOT

percent disturbed except Ground Disturbing Activities (GDAs) 6, 15, 19 and 20, which are keyed as 30 to 60 percent disturbed.

Approximately 11,000 acres, located beyond facility buildings, are included in an on-going silvicultural program. The facility is divided into cutting compartments that are harvested on a rotating basis. None is subjected to clear-cutting.

In summary, a total of approximately 16,622 acres (87 percent of the total 19,081 acres) has been disturbed to some extent. This includes about 11,000 acres of silvicultural areas and 5622 acres of building/ storage areas, facility operations areas, railroads, reservoirs and pipelines.

3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS; COVERAGE AND INTENSITY

Only one archeological survey has been conducted on the Red River Army Depot. In April 1980, Espey, Huston and Associates, Inc., under contract to Southwestern Electric Power Company (SWEPCO), conducted a cultural resources and endangered species survey of a proposed 345-KV transmission line right-of-way (Table 3-2). The proposed transmission line traversed approximately 3.5 miles across Depot lands, and the survey covered right-of-way width of 150 feet (about 64 acres) within the depot (Figure 3-3).

Five historic sites were recorded by the 1981 corridor survey: 41 BW 175, 41 BW 176, 41 BW 177, 41 BW 178, 41 BW 179. Only sites 41 BW 175 and 41 BW 176 are within the Red River Army Depot boundary. Of these five sites, four consisted of surface scatterings of historic material (e.g., glass, ceramics, metal) representing the locations of now-razed structures dating to the late nineteenth or early twentieth centuries. Site 41 BW 179 was identified as the Bob Lane Cemetery. No prehistoric archeological sites were located.

Table 3 2. ARCHEOLOGICAL SURVEYS CONDUCTED ON THE RED RIVER ARMY DEPOT

Survey Administration					Survey Location						Artifacts		Survey Characteristics					Identified Archeological Resources	
					UTM[c]		Legal Description[d]												
SHPO Survey No.[a]	Survey Institution, Firm[b]	Survey Date (yr)	Survey Record Repository[b]	Bibliographic Reference	Northing	Easting	Township	Range	Section	USGS[f] Quad Map[e]	Collection Policy[f]	Curatorial Repository[b]	Survey Type, Area[g]	Temporal Coverage[h]	Transect Type, Interval (m.)[i]	Rate (a./person day)[j]	Subsurface Tests[k]	Sites[l]	Isolated Finds, Features
None	EH&A	1980	EH&H	Espey, Huston & Associates 1981	--	--	--	--	--	N155U	SGS	EH&A	ILS	H	T U	4 16	NM	5	None

[a] SHPO survey number has not been assigned, however Espey, Huston and Associates have assigned Job No. 1013 to this survey.

[b] Espey, Huston and Associates, Austin, Texas

[c] UTM = Universal Transverse Mercator coordinates, Zone 15. If the survey is a linear corridor, the coordinates of its two ends are listed. If it is a block area of less than 10 acres in extent, the coordinates of the approximate center of the survey area have been noted. If the study is a block area of larger size, the corners of a 3-or-more sided figure enclosing the survey area have been located. Survey areas have been mapped in Figure 3 2.

[d] Township/range/section not applicable in this part of Texas.

[e] N155U = USGS New Boston, TX, 15 min. topographic sheet.

[f] Survey collection policies vary widely, both on a site-to-site basis within a single survey project as well as among different surveys. Collection policies of the surveys identified here were a surface "grab" sample without mapping (SGS).

[g] An intensive linear survey indentifying at least 90% of the surface sites over a 64-acre area.

[h] P = prehistoric only, H = historic only, PH = both prehistoric and historic resources identified.

[i] Transect survey with unknown interval.

[j] Report not explicit; apparently two people in two days covered 64 acres (16 acres/work day).

[k] Not mentioned in report.

[l] All five are historic, including one cemetery. Only two are within the facility (41 BW 175 and 41 BW 176).

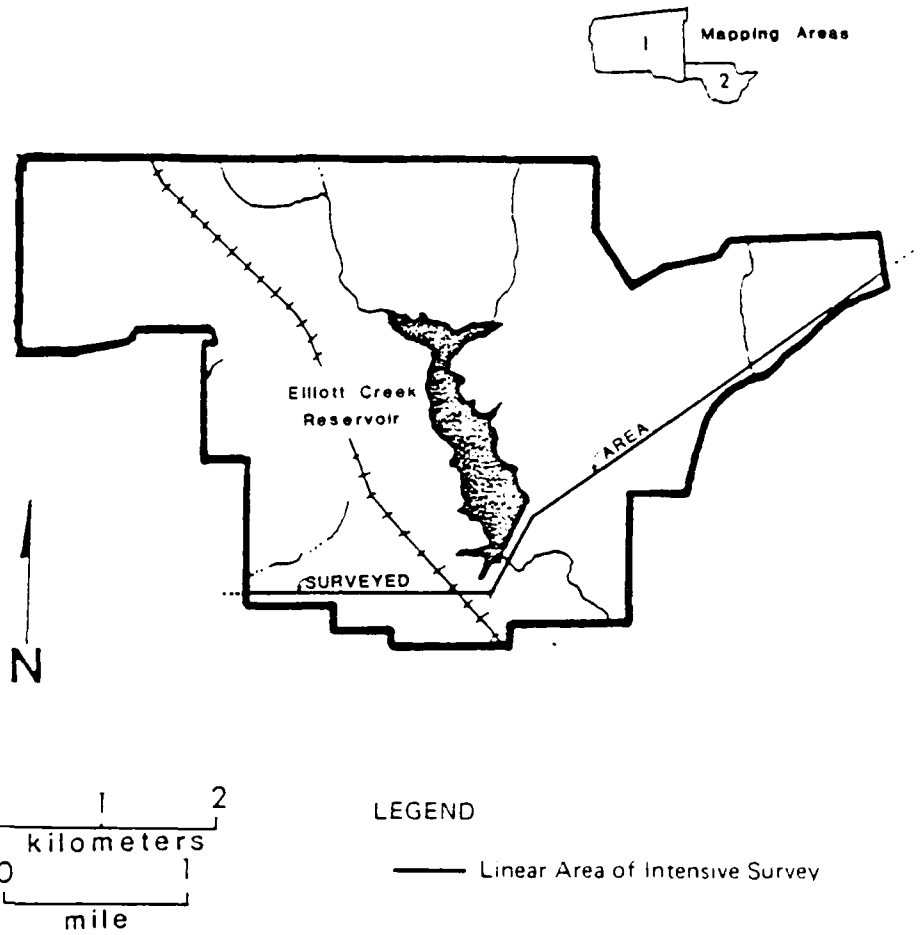


Figure 3-3. MAP OF ARCHEOLOGICAL SURVEYS CONDUCTED ON THE RED RIVER ARMY DEPOT

Due to site disturbances resulting from land levelling, terracing, and timber cutting, none of the surface scatters was considered eligible for the National Register of Historic Places and no mitigation was recommended. The Bob Lane Cemetery was to be avoided by a transmission line reroute to insure its protection from project impact.

Three prehistoric archeological sites are known to occur on the Depot (Harland Bartholomew and Associates 1978) but have not been formally surveyed. All the sites were either discovered by or reported to facility employees. None of the sites has been reported to the Texas Archeological Survey or the Texas Historical Commission, the designated official state repositories for archeological site documentation within Texas. One site, the Caney Creek site located along the north edge of Caney Creek Reservoir (Figure 1-1), has been dated to the Coles Creek and early Caddo Indian cultural periods and has been partially destroyed by the lake. It may have been a primary camp site. The other two prehistoric sites are secondary camps and are located along the east and west edges of Elliott Creek Reservoir (Figure 1-1) and also date from the Coles Creek and later Caddo Indian culture periods. Information regarding artifact collections from these sites is unavailable. All have apparently been extensively damaged by agriculture and reservoir bankline erosion. The locations are marked with signs designating them as "Preserved Areas - Do Not Disturb" (Sid Knight, personal communication 1983).

In 1936, the state of Texas placed a granite marker at the home site of Hardin R. Runnels, Governor of Texas from 1857 to 1859. The house, built in 1853 and destroyed by fire in 1914, was located in the present igloo storage Area E of the Red River Army Depot.

3.4 SUMMARY ASSESSMENT OF DATA ADEQUACY, GAPS

The paucity of data presently available regarding prehistoric archeological sites on the facility indicates a need for additional

future cultural resources management needs. Based on environmental/ physiographic literature detailing soils, geology, flora/fauna, and recognized prehistoric settlement patterns in the area, the potential is high for locating presently unrecorded prehistoric archeological sites through additional survey.

Information regarding the historic settlement of the area is relatively good and abundant. The potential locations of 239 homestead sites (dating from at least AD 1904) have been identified (Section 4.0) and it is thought very likely that on-the-ground investigation will locate many more. Note that the Espey, Huston and Associates (1980) survey located five historic sites in an area of about 64 acres. Assuming an equal site density over the entire acreage, 1,490.7 historic homestead sites might be present, although that density is considered unlikely. For these reasons Red River Army Depot personnel are encouraged to develop close coordination on future projects with the Texas SHPO.

4.0 KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

The following section discusses both known and potential site locations. The known locations consist of those archeological sites recorded on the facility through on-the-ground survey. Table 4-1 lists the known sites, Table 4-2 lists their chronological components and ascribed functions, and Table 4-3 provides the administrative data for these sites. Locational data for the known sites are presented in Appendix A (Table A-1) and these are depicted in Figure A-1.

Potential site locations consist of several types: cemeteries plotted on recent USGS quads and facility maps; now-razed homestead sites and schools depicted on early USGS quads of the facility; structures listed in the Property Appraisal prepared at the time of Government property acquisition; a Texas Historical marker; those sites whose locations have been reported to facility personnel and for which basic locational information is available; and those early historic and prehistoric (unmapped) sites whose potential existence is based on early historical, ethnographic and regional archeological studies. Homestead locations and schools are mapped locations but have not been verified through field investigation. These potential sites are listed in Table 4-4. No artifactual or documentary evidence is available for this site category. Potential site location information is presented in Appendix A (Table A-2 and Figure A-2 and A-3).

4.1 KNOWN LOCATIONS

Espey, Huston and Associates (1980) recorded five historic sites (41 BW 175, 41 BW 176, 41 BW 177, 41 BW 178 and 41 BW 179) during a

Table 4 1. PRESENTLY IDENTIFIED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT: ADMINISTRATIVE DATA

Site Number[a]	Site Recorder[b]	Date of Site Record	SHPO Survey Number	Site Record Repository[c]	Survey Collection Policy[d]	Current Status of Investigation[e]	NRHP Status	State, Local Status	Architectural Association	Bibliographic Reference
41BW175	EHA	4 8 80	None	TARL	CD	REF, SCL	None	None	None	Espey, Huston & Associates, 1980
41BW176	EHA	4 8 80	None	TARL	CD	REF, SCL	None	None	None	Espey, Huston & Associates, 1980

[a] Site registration numbers are a trinomial designation following a system set up by the Smithsonian Institution in the late 1940s. The first segment of the trinomial is a numerical label for the state (e.g., Indiana = 12), the second segment is a two-letter abbreviation for the county (e.g., VE = Vermillion), and the final segment is a sequential identification of the sites registered within that county and state. Thus, a site listed here as "1209" is formally registered as "12-VE-1209" in the Indiana state record system. Site locational data are provided in Table A-1, and are mapped in Figure A-1.

[b] Espey, Huston and Associates, Austin, TX (EHA).

[c] Texas Archeological Research Laboratory, Austin, TX (TARL).

[d] Survey collection policies vary widely, both on a site-to-site basis within a single survey project as well as among different surveys. Collection policies of the surveys identified here were to collect surface diagnostics without mapping (CD).

[e] Levels of archeological site investigation to date, and current site status, include filing of an inventory record (REF), and surface collection (SCL).

Table 4 2. PRESENTLY IDENTIFIED ARCHEOLOGICAL COMPONENTS ON THE RED RIVER ARMY DEPOT: DESCRIPTION AND EVALUATION

	Unit Age				Unit Description								Evaluation		
	Date[a]		Temporal Unit						Dimension[h]						
Site Number	DM	Years BC/AD	Tradition	Phase (Period)	Artifacts[b]	Features	Depositional Context	Landform[c]	Area (m^2)[d]	Depth (m)	Ascribed Function	Percent Intact	Value Integrity[e]	RV[f]	CR[g]
41BW175	REL	L19 I20	American	Historic	G,C,E, P,EP	Cellar	Surface	URS	15,000	SU	House Site	0	NV	1	3
41BW176	REL	L19 I20	American	Historic	BF,CF,G, E,C,GP	None	Surface	URS	12,000	SU	House Site	0	NV	1	3

[a] Dating methods (DM) include radiocarbon (RC), thermoluminescence (TL), geochronology (GEO), dendrochronology (DEN), fluorescence (FL), hydration (HY), and/or relative (REL) based on artifact attributes or a combination of these. Years BC/AD: Late 19th into 20th century (L19 I20).

[b] Glass (G); china (C); earthware (E): porcelain (P); enamel pan (EP); brick fragments (BF); concrete fragments (CF); garden plow (GP).

[c] Upland ridge slope (URS).

[d] Surface (SU).

[e] Essentially no value except to family members (NV).

[f] This is a subjective summary assessment of the overall research value (RV) of the identified components. It is an evaluation of the resources quality of preservation, representation of activity diversity or uniqueness, and temporal distinctiveness or reflection of diachronic relationships. It incorporates the need to avoid triviality, but to acquire what may be redundant data so as to discern patterns among those data. Research values are ranked from 0 (no value) to 5 (highest value).

[g] This is a rating of the confidence (CR) the authors have in the previously assigned research values (RVs). 1 = judgement is more guess than science, and likely not to be reliable; 2 = judgement is moderately reliable; 3 = judgement is most likely to be reliable.

Table 4 3. PRESENTLY KNOWN ARTIFACT, ECOFACT, OR DOCUMENTARY COLLECTIONS FROM ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

Site Number, Name	Collection Location		Collection Characteristics					
			Artifact		Ecofact		Documentary	
	Curatorial Repository[a]	Accession Number(s)	Brief Description[b]	Size/No.	Brief Description	Size/No.	Brief Description	Size/No.
41BW175	EHA	Unknown	HM, G, HC	Unknown	Unknown		Unknown	
41BW176	EHA	Unknown	HM, G, HC	Unknown	Unknown		Unknown	

[a] Espey, Huston and Associates, LA (EHA)

[b] HM = historic metal; G - glass; HC - historic ceramics and tile.

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
1	NB	Homestead	2
2	NB	Homestead	2
3	NB	Homestead	2
4	NB	Homestead	2
5	NB	Homestead	2
6	NB	Homestead	2
7	NB	Homestead	2
8	NB	Homestead	2
9	NB	Homestead	2
10	NB	Homestead	2
11	NB	Homestead	2
12	NB	Homestead	2
13	NB	Homestead	2
14	NB	Homestead	2
15	NB	Homestead	2
16	NB	Homestead	2
17	NB	Homestead	2
18	NB	Homestead	2
19	NB	Homestead	2
20	NB	Homestead	2
21	NB	Homestead	2
22	NB	Homestead	2
23	NB	Homestead	2
24	NB	Homestead	2
25	NB	Homestead	2
26	NB	Homestead	2
27	NB	Homestead	2
28	NB	Homestead	2
29	NB	Homestead	2
30	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
31	NB	Homestead	2
32	NB	Homestead	2
33	NB	Homestead	2
34	NB	Homestead	2
35	NB	Homestead	2
36	NB	Homestead	2
37	NB	Homestead	2
38	NB	Homestead	2
39	NB	Homestead	2
40	NB	Homestead	2
41	NB	Homestead	2
42	NB	Homestead	2
43	NB	Homestead	2
44	NB	Homestead	2
45	NB	Homestead	2
46	NB	Homestead	2
47	NB	Homestead	2
48	NB	Homestead	2
49	NB	Homestead	2
50	NB	Chalyleate School[c]	2
51	NB	Homestead	2
52	NB	Homestead	2
53	NB	Homestead	2
54	NB	Homestead	2
55	NB	Homestead	2
56	NB	Homestead	2
57	NB	Homestead	2
58	NB	Homestead	2
59	NB	Homestead	2
60	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
61	NB	Homestead	2
62	NB	Homestead	2
63	NB	Homestead	2
64	NB	Homestead	2
65	NB	Homestead	2
66	NB	Homestead	2
67	NB	Homestead	2
68	NB	Homestead	2
69	NB	Homestead	2
70	NB	Homestead	2
71	NB	Homestead	2
72	NB	Homestead	2
73	NB	Homestead	2
74	NB	Homestead	2
75	NB	Homestead	2
76	NB	Homestead	2
77	NB	Homestead	2
78	NB	Homestead	2
79	NB	Homestead	2
80	NB	Homestead	2
81	NB	Homestead	2
82	NB	Homestead	2
83	NB	Homestead	2
84	NB	Homestead	2
85	NB	Homestead	2
86	NB	Homestead	2
87	NB	Homestead	2
88	NB	Homestead	2
89	NB	Homestead	2
90	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
91	NB	Homestead	2
92	NB	Homestead	2
93	NB	Homestead	2
94	NB	Homestead	2
95	NB	Homestead	2
96	NB	Homestead	2
97	NB	Homestead	2
98	NB	Homestead	2
99	NB	Homestead	2
100	NB	Homestead	2
101	NB	Homestead	2
102	NB	Homestead	2
103	NB	Homestead	2
104	NB	Homestead	2
105	NB	Homestead	2
106	NB	Homestead	2
107	NB	Homestead	2
108	NB	Homestead	2
109	NB	Homestead	2
110	NB	Homestead	2
111	NB	Homestead	2
112	NB	Homestead	2
113	NB	Homestead	2
114	NB	Homestead	2
115	NB	Homestead	2
116	NB	Homestead	2
117	NB	Homestead	2
118	NB	Homestead	2
119	NB	Homestead	2
120	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
121	NB	Homestead	2
122	NB	Homestead	2
123	NB	Homestead	2
124	NB	Homestead	2
125	NB	Homestead	2
126	NB	Homestead	2
127	NB	Homestead	2
128	NB	Homestead	2
129	NB	Homestead	2
130	NB	Homestead	2
131	NB	Homestead	2
132	NB	Homestead	2
133	NB	Homestead	2
134	NB	Homestead	2
135	NB	Homestead	2
136	NB	Homestead	2
137	NB	Homestead	2
138	NB	Homestead	2
139	NB	Homestead	2
140	NB	Homestead	2
141	NB	Homestead	2
142	NB	Homestead	2
143	NB	Homestead	2
144	NB	Homestead	2
145	NB	Homestead	2
146	NB	Homestead	2
147	NB	Homestead	2
148	NB	Homestead	2
149	NB	Homestead	2
150	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
151	NB	Homestead	2
152	NB	Homestead	2
153	NB	Homestead	2
154	NB	Homestead	2
155	NB	Homestead	2
156	NB	Homestead	2
157	NB	Homestead	2
158	NB	Homestead	2
159	NB	Homestead	2
160	NB	Homestead	2
161	NB	Homestead	2
162	NB	Homestead	2
163	NB	Homestead	2
164	NB	Homestead	2
165	NB	Homestead	2
166	NB	Homestead	2
167	NB	Homestead	2
168	NB	Homestead	2
169	NB	Homestead	2
170	NB	Homestead	2
171	NB	Homestead	2
172	NB	Homestead	2
173	NB	Rock Creek School	2
174	NB	Homestead	2
175	NB	Homestead	2
176	NB	Homestead	2
177	NB	Homestead	2
178	NB	Homestead	2
179	NB	Homestead	2
180	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
181	TEX	Homestead	2
182	TEX	Homestead	2
183	TEX	Homestead	2
184	TEX	Homestead	2
185	TEX	Homestead	2
186	TEX	Homestead	2
187	TEX	Homestead	2
188	TEX	Homestead	2
189	TEX	Homestead	2
190	TEX	Homestead	2
191	NB	Homestead	2
192	NB	Homestead	2
193	NB	Homestead	2
194	NB	Homestead	2
195	NB	Homestead	2
196	NB	Homestead	2
197	NB	Homestead	2
198	NB	Homestead	2
199	NB	Homestead	2
200	NB	Homestead	2
201	N	Homestead	2
202	NB	Homestead	2
203	NB	Homestead	2
204	NB	Homestead	2
205	NB	Homestead	2
206	TEX	Concord School[c]	2
207	TEX	Homestead	2
208	TEX	Homestead	2
209	TEX	Homestead	2
210	NB	Homestead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (cont'd)

Site, Number Name[a]	Reference[b]	Description	Research Value CR[d]
211	NB	Homestead	2
212	NB	Homestead	2
213	NB	Homestead	2
214	NB	Homestead	2
215	NB	Homestead	2
216	NB	Homestead	2
217	NB	Homestead	2
218	NB	Homestead	2
219	NB	Homestead	2
220	NB	Homestead	2
221	NB	Homestead	2
222	NB	Homestead	2
223	NB	Homestead	2
224	NB	Homestead	2
225	NB	Homestead	2
226	NB	Homestead	2
227	NB	Homestead	2
228	NB	Homestead	2
229	NB	Homestead	2
230	NB	Hayes cemetery	2
231	NB	Runnels cemetery	2
232	NB	Historic marker (Governor Runnels' home)	2
233	NB	Collom cemetery	2
234	NB	Till cemetery	2
235	AES, 1978	Prehistoric camp	2
236	NB	Elliott cemetery	2
237	AES, 1978	Prehistoric camp	2
238	AES, 1978	Prehistoric camp	2
239	NB	McAdams cemetery	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (concl'd)

[a] Sites have been given "potential site register numbers" only within the context of this overview and planning effort, and are numbered sequentially across the facility. Their locational data are provided in Table A-1, and they are illustrated in Figure A-2 and A-2.

[b] TEX = U.S.G.S. 1904-1906 Texarkana, Tex.-Ark. 15' Topographic Quad; NB = U.S. Department of the Interior 1906 New Boston, Texas, 15' Topographic Quad; AES, 1978 = Analytical/Environmental Assessment Report prepared by Harland Bartholomew and Associates, 1978.

[c] Description: Site No. 50 is either Chalyleate or Chalybeate and is nearly illegible on early map; site 206 may be Concord School but map reproduction is very unclear.

[d] The Confidence Rating (CR) of the potential resource base's research value is a general assessment (based on available data) of the authors' confidence in the site's physical integrity and value (e.g., representation of activity diversity or uniqueness, temporal distinctiveness or reflection of diachronic relationships, representativeness). The CR is a ranked assessment: 1 = the site is likely to have little value or the information about it is too unreliable for making a value judgement; 2 = the resource may have research value and the authors are moderately confident that the information about it is reliable; 3 = the resource is likely to have high research value and the authors are quite confident that the information about it is reliable.

cultural resources and endangered species survey of a SWEPCO power line right-of-way through the facility (Section 3.3). These include four surface scatters of historic glass, ceramics, and metal fragments dated to the mid- or late nineteenth century representing the locations of now-razed structures, presumably residences. The Bob Lane Cemetery (41 BW 179) was also recorded. Of these five sites only two (41 BW 175 and 41 BW 176) are within the Red River Army Depot boundary. These sites were located through transect survey and were found to occur in highly disturbed contexts, the result of plowing, terracing and on-going tree clearing. They were considered not eligible for inclusion on the National Register of Historic Places. Site 41 BW 176 appears to be the same as "potential site" 185 identified on Figure A-3.

4.2 POTENTIAL LOCATIONS

Six cemeteries are present on the facility. These date from the mid-nineteenth century and represent interments associated with the initial settlement of the area during the Settlement Period (AD 1835-1940). Four of these cemeteries (Runnels, Collom, Elliott, and McAdams) bear the names of original land grantees within the facility property. The cemeteries are fenced and well maintained by facility maintenance personnel.

Another potential site-type presumably dates from the Homestead Claims period (AD 1838-1910) and consists of the locations of 229 now-razed structures and/or residences and 4 schools. Locational data were obtained from the 1906 New Boston 15 min. quad (published by the U. S. Department of the Interior) and the 1904 Texarkana 15 min. quad map (published by the U. S. Geological Survey). These potential site locations are expected to consist of scatterings of domestic refuse associated with the structures or residences located within the facility acreage. Anticipated cultural material includes historic ceramic and glass fragments, round and possibly square nails, brick/stone chimney and pier remains, and metal parts. Features such as wells, animal pens, cisterns, and cellars (storage and storm) are also likely to be present

at some locations. Four schools were also present and may be identified as such based on associated cultural material. These sites have not been intentionally preserved or maintained in any way, resulting in their being overgrown by vegetation. Figure A-2 indicates that facility building construction has not impacted the majority of the structure locations, although subsequent silvicultural activity probably has disturbed them to some extent. Of the 239 identified structure locations (Table 4-4), approximately 147 are not coincidental with the Ground Disturbance Areas identified in Table 3-1 and Figure 3-2. It is therefore likely that most will be identifiable on the ground.

Other potential site locations are based on the Property Appraisal Reports maintained in the Real Property Title Files at the Red River Army Depot, Facilities Engineering Building. The reports contain information on a tract basis, regarding the number of buildings, their function and condition, and were prepared during government acquisition of the facility property in 1940-1941. This information is also summarized in Table 4-5, which is arranged alphabetically by Headright Survey name (original land grantee from the State of Texas) and numerically by tract number division within this ordering. Table 4-6 defines abbreviations used in Table 4-5 and tabulates the total numbers of the various structure types. A total of 194 structures were identified from the Appraisal Reports. The structure type names were taken directly from the tract Appraisal Reports. Note that a "boxed" structure is one enclosed by boards. The precise location of these structures is unavailable, although the respective land tracts in which they were located is known. Unfortunately the information regarding structures present at acquisition is very limited and is available only for a very small portion of the total acreage. Available information does, however, give an idea of representative structure types and their functions. Areas (tracts) for which information survives are located in the easternmost section of the facility and include most of the acreage situated below (south of) the Lone Star AAP which is adjacent to the Red River Army Depot. Appraisal Reports for the remainder of the acreage were sent to the Fort Worth

Table 4-5. AVAILABLE DATA FOR STRUCTURES WITHIN TRACTS AT THE TIME OF GOVERNMENT APPRAISAL OF THE RED RIVER ARMY DEPOT PROPERTY IN 1940-1941

Headright Survey	Tract	Struct. 1940-41	Structures 1940-1941[a] Types/Conditions	Remarks
Akin, Collin M.	593	-	-	RIT, RRD
Ball, John	568	-	-	RIT, RRD
Bartlet, R.A.	-	-	-	TRD
Benningfield, H.P.	190	4	1 FH with "L" (p), 1 FB (p), 1 BC (p), 1 SM	-
	219	3	1 HO, 1 SM, 1 PH	BRW
	224	4	1 DW, 1 RH, 1 B, 1 PH	BRW
	225	0	-	NBIA
	332	0	-	NBIA
	333	0	-	NBIA
	337	+	No descriptions given	BRW
	338	5	1 FB (f), 2 S (f), 1 FCR (f), 1 SM	-
	363	-	-	NBIA
	364	11	1 BH (f), 1 BS, 1 CBA, 2 FSE, 1 LB (p), 2 LS (p), 1 BCS (f), 1 LCH (f), 1 BB (g)	LB and LS described as "old"
	365	4	1 HO with "wing", 1 B, 1 SM, 1 PH	BRW
	366	-	-	NBIA
	367	+	Not given	All were destroyed
	368	5	2 HO, 1 G, 2 B	BRW; 1 HO is a "No. 2" with "L"; 1 B is a "No. 2".
	371	4	1 HO, 1 B, 1 SM, 1 T	BRW
Collom, Charles	424	3	2 DW, 1 B	BRW; RRD
Collom, Jonathan	-	-	-	TRD
Crump, C.C.	-	-	-	TRD
Davis, J.	148	-	-	NBIA
	150	+	Not given	BRW
	360	5	1 FH (g), 1 BH, 1 FG (f), 1 LC (p), 1 FPH (f)	BH was in "unfinished" condition; FG was 2 story
	362	5	1 HO, 1 G, 1 PH, 1 CS, 1 B, 1 S	BRW
	395	5	1 FH (g), 1 BG (g), 1 SLH, 1 LB (g), 1 BXB (f)	FW with "wing"; LB is a No. 1; BXB is a No. 2.
	396	5	1 CSB, 1 HO, 1 PH, 1 T, 1 B	BRW

Table 4-5. AVAILABLE DATA FOR STRUCTURES WITHIN TRACTS AT THE TIME OF GOVERNMENT APPRAISAL OF THE RED RIVER ARMY DEPOT PROPERTY IN 1940-1941 (continued)

Headright Survey	Tract	Struct. 1940-41	Structures 1940-1941[a] Types/Conditions	Remarks
Dunn, J.G.	146	+	Not given	BRW
	392	0	-	NBIA
	393	0	-	NBIA
Elliot, J.W.F.	140	+	Not given	BRW
	141	0	-	NBIA
	142	3	1 PB, 1 S, 1 PPH	PB with board shingle roof
	157	0	-	NBIA
	158	0	-	NBIA
	160	3	2 BH, 1 SLC	
	161	+	Not given	BRW
	162	+	Not given	$90.00 cotton sold with this property
	163	0	-	NBIA
	164	1	1 DW	BRW
	165	+	Not given	BRW
	193	1	1 FC (g)	Concord Methodist Church
	327	+	Not given	BRW
Elliott, S.D.	146	+	Not given	BRW
	147	+	Not given	BRW
	148	0	-	NBIA
	191	0	-	NBIA
	192	0	-	NBIA
	394	7	1 HO with wing, 1 SP, 1 SM, 1 S, 1 PH, 1 B, 1 CHU	BRW
Hamilton, Robt. H.	359	6	1 HO with "L", 1 SM, 1 PH, 1 S, 2 B	BRW
	397	5	1 HO, 1 B, 1 SP, 1 SM, 1 G	BRW
	398	0	-	NBIA
Harper, James	543	-	-	RIT; RRD
Hawkins, Wm. B.	642	-	-	TRD
Herring, John S.	334	+	Not given	BRW
	336	0	-	NBIA
	343	0	-	NBIA
	344	0	-	NBIA
	700	0	-	NBIA
	701	0	-	NBIA
	702	0	-	NBIA
	703	0	-	NBIA
	704	0	-	NBIA
	705	0	-	NBIA
Lindsey, Robt. M.	404	10	1 FH (g), 2 PH, 1 CB, 2 B, 2 SM, 1 HO, 1 T	BRW (except the FH)

Table 4-5. AVAILABLE DATA FOR STRUCTURES WITHIN TRACTS AT THE TIME OF GOVERNMENT APPRAISAL OF THE RED RIVER ARMY DEPOT PROPERTY IN 1940-1941 (continued)

Headright Survey	Tract	Struct. 1940-41	Structures 1940-1941[a] Types/Conditions	Remarks
Lindsey, Robt. M. (cont'd)	462	8	1 FH (g), 1 FB (p), 1 BP (f), 1 BSD (f), 1 BCS (f), 1 BH (f), 1 LCH (p), 1 BC (f)	
	463	4	1 BH with "L" (f), 1 LB (f), 1 BP (p), 1 LSM (f)	
	464	0	-	NBIA
	465	0	-	NBIA
	466	5	1 BH (f), 1 LB (f), 1 LSM (f), 1 BCS (p), 1 LCH (p)	-
	467	1	1 HO	HO was "old and fallen down"
	625	-	-	RIT
M.E.P.&P. RR Co.	155	0	-	NBIA
	505	0	-	NBIA
	506	-	-	No records
	507	-	-	No records
	508	-	-	No records
	706	0	-	NBIA
McAdams, Bethany	400	5	1 BLSC, 1 HO with wing, 1 PH, 2 C	BRW (except the lined storm cellar
	401	5	1 HO, 1 B, 1 PH, 1 CES, 1 SM	BRW
	402	6	1 HO with "L", 1 S, 1 B, 1 SM, 1 G, 1 PH	BRW
	403	0	-	NBIA
	404	10	1 FH (g), 2 PH, 1 CB, 2 B, 2 SM, 1 HO, 1 T	BRW (except FH)
	403	0	-	NBIA
	404	10	1 FH (g), 2 PH, 1 CB, 2 B, 2 SM, 1 HO, 1 T	BRW (except FH)
	405	0	-	NBIA
Moore, J.L.	187	-	-	Not in Title Files
	324	1	TH(g)	-
	325	+	Not given	BRW
	328	+	Not given	BRW
	329	0	-	NBIA
Morris, Daniel	707	0	-	NBIA
	708	0	-	NBIA
	709	0	-	NBIA
	710	0	-	NBIA
	711	0	-	NBIA

Table 4-5. AVAILABLE DATA FOR STRUCTURES WITHIN TRACTS AT THE TIME OF GOVERNMENT APPRAISAL OF THE RED RIVER ARMY DEPOT PROPERTY IN 1940-1941 (concluded)

Headright Survey	Tract	Struct. 1940-41	Structures 1940-1941[a] Types/Conditions	Remarks
Morris, Daniel (cont'd)	712	1	1 DW	Was under construction and removed
Paxton, John	-	-		TRD
Reed, John A.	-	-	-	TRD
Runnels, H.R.	594	-	-	RIT; RRD
Seidikum, F.C.	-	-	-	TRD
Shockley, W.D.	124	6	1 HO, 1 FBS, 1 CE, 1 LC, 1 FBSH, 1 S	All were apparently destroyed
	125	+	Not given	BRW
	145	0	-	NBIA
	152	1+	1 BD	BD destroyed and others (not described) removed
	153	7	1 FDW (p), 1 BG with open shed, 1 FPH, 1 BXB, 2 S (p), 1 SB	-
	322	7	1 FDW with 2 "L" (g), 1 FTH (f), 1 FG (g), 1 FB (f), 2 LC (f), 1 FPH (f)	-
	323	+	Not given	BRW
	324	4	1 DW, 1 RH, 1 B, 1 PH	BRW
	325	0	-	NBIA
Smelser, J.H.	-	-	-	TRD
Smith, J.M.	-	-	-	TRD
Smith, John M.	-	-	-	TRD
Smithson, John	220	0	-	NBIA
	467	1	1 HO	HO was "old and fallen down"
Sythe, Francis	553	-	-	RIT;RRD
Thompson, W.F.	-	-	-	TRD
Tilson, M.D.	143	5	2 HO, 2 B, 1 S	BRW
White, Durant H.	-	-	-	TRD
Williams, N.	-	-	-	TRD
Young, Wm.	115	11	1 HO, 2 B, 2 S, 1 G, 1 SG, 3 PH, 1 SW	-
	116	0	-	NBIA
	119	5	1 FH (p), 2 BXB, 1 S (f), 1 PH	PH of planks
	188	1+	1 FBD	FBD apparently destroyed and others removed

[a] See Table 4-6 for definition of abbreviations.

Table 4-6. AVAILABLE DATA FOR STRUCTURES PRESENT ON THE RED RIVER ARMY DEPOT AT THE TIME OF GOVERNMENT ACQUISITION IN 1940-1941

Abbreviation (From Table 4-5)	Abbreviation Defined	Number of This Type
B	Barn	23
BB	Boxed brooder house	1
BC	Boxed crib	2
BCS	Boxed cow shed	3
BD	Boxed dwelling	1
BG	Boxed garage	2
BH	Boxed house	7
BLSC	Boxed lined storm cellar	1
BP	Boxed poultry house	2
BS	Boxed shed	1
BSD	Boxed seed house	1
BXB	Boxed barn	4
C	Crib	2
CB	Cow barn	2
CBA	Crib barn	1
CE	Cellar	1
CES	Cellar (storm)	1
CHU	Chute (stock)	1
CS	Cow shed	1
CSB	Combination store building	1
DW	Dwelling	6
FB	Frame barn	4
FBD	Frame boxed dwelling	1
FBS	Frame boxed shed	1
FBSH	Frame boxed storage shed	1
FC	Frame church	1
FCR	Frame crib	1
FDW	Frame dwellings	2
FG	Frame garage	2

Table 4-6. AVAILABLE DATA FOR STRUCTURES PRESENT ON THE RED RIVER ARMY DEPOT AT THE TIME OF GOVERNMENT ACQUISITION IN 1940-1941. (continued)

Abbreviation (From Table 4-5)	Abbreviation Defined	Number of This Type
FH	Frame house	7
FPH	Frame poultry house	3
FSE	Frame shed	2
FTH	Frame tenant house	1
G	Garage	5
HO	House	21
LB	Log barn	4
LC	Log crib	4
LCH	Log chicken house	3
LS	Log shed	2
LSM	Log smoke house	2
PH	Poultry house	19
PB	Pole barn	1
PPH	Pole poultry house	1
RH	Rent house	2
S	Shed	14
SB	Slab barn	1
SG	Storage building	1
SLC	Slab crib	1
SLH	Slab lumber hog shed	1
SM	Smoke house	14
SP	Shop	2
SW	Swimming pool	1
T	Toilet	4
TH	Tenant house	1
	TOTAL	194

Table 4-6. AVAILABLE DATA FOR STRUCTURES PRESENT ON THE RED RIVER ARMY DEPOT AT THE TIME OF GOVERNMENT ACQUISITION IN 1940-1941. (concluded)

(g) - good

(f) - fair

(p) - poor

NBIA - no buildings in appraisal report

BRW - buildings in tracts were reserved in option and have been removed

RIT - records incomplete for this tract

RRD - records for the remaining tracts have been destroyed

TRD - all tract records for this headright survey have been destroyed

AD-A149 830 AN ARCHEOLOGICAL OVERVIEW AND MANAGEMENT PLAN FOR THE RED RIVER RRMY DEPO. (U) WOODWARD-CLYDE CONSULTANTS WALNUT CREEK CA T DIESTE ET AL. 10 DEC 84 2/2

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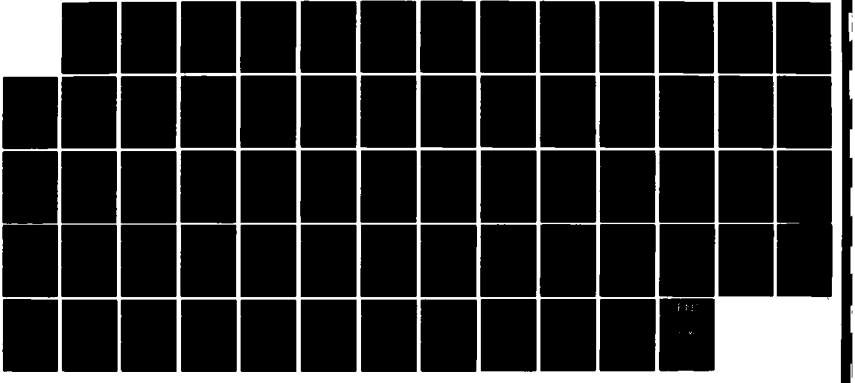

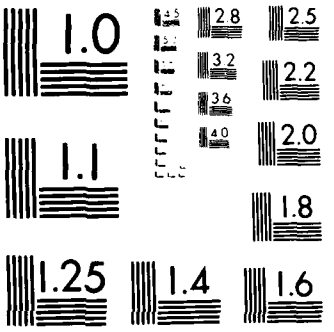

Corps of Engineers, Real Estate Division (date unavailable) and from there were sent to Records Holding where they were temporarily stored and then destroyed (Monna Schubert 1983: Personal communication).

During property appraisal, the then-standing structures were either reserved by the owners in the land acquisition agreement and relocated beyond the facility, or compensated for in the purchase agreement and destroyed. Reportedly only one landowner opted to remove his structures and the remainder within the acquired acreage were destroyed, usually by fire (Sid Knight 1983: Personal communication).

It is thought likely that many of these structures present at the time of property acquisition (1940-1941) are the same as those depicted on the 1904-06 quad maps. Because historically this area has been continuously occupied and because families tend to remain in dwellings for multiple generations, it is also likely that many of these 1904-1906 structures date from the time of initial settlement of the area in the 1830s.

A granite marker, erected by the state of Texas in 1936, marks the location of Hardin R. Runnels' home (built 1853 and destroyed by fire in 1914). Runnels was the fifth governor of Texas (1856-1859) and an original land grantee within the facility. Upon his death in 1873 he was buried in the Runnels Cemetery, located near the house site. His body was removed to the State Cemetery in Austin, Texas, in the early 1930's.

Three potential prehistoric archeological sites have been identified on the facility and were either discovered by or reported to facility personnel. No report of these sites has been filed with the Texas Archeological Survey or the Texas Historical Commission. These sites, located along the terrace margins overlooking the now-innundated floodplains of Elliott and Caney Creeks, were described as either primary or secondary camps dating from the Coles Creek into early Caddo periods (Harland Bartholomew and Associates 1978). The availability of artifacts

from these sites is presently unknown. The sites have reportedly been damaged by agriculture and reservoir bankline erosion and have not been professionally surveyed or excavated (Harland Bartholomew and Associates 1978). Their locations are marked with signs designating them as "Preserved Areas - Do Not Disturb" (Sid Knight, personal communication 1983). The depositional context of the sites can not be addressed. The only available written documentation is the U. S. Army Materiel Development and Readiness Command Environmental Impact Assessment for Maintenance Modernization Project No. L.I.95 (U. S. Department of the Army 1979), which states that "while the exact limits have not been determined, they appear to be concentrated at the markers (signs), lensing out from the markers." This description suggests that subsurface cultural deposits may be present, although in an erosional context.

Unmapped potential sites consist of early historic sites dating from the time of European exploration and early settlement (AD 1542-1719), the Colonial Period (AD 1719-1836), Historic Indian sites (AD 1700-1835), and prehistoric sites. The Red and Sulphur rivers were frequently-used transportation routes during these early periods. (Recall that in AD 1719 the French explorer la Harpe traversed the facility acreage in route to the Red River where he established the Nassonite Post [site 41 BW 5] on present Roseborough Lake, about 15 miles north of the facility.) Their proximity to the facility (Red River is 8 miles north, Sulphur River is 13 miles south) indicates that the facility area may have been visited during this time. Although there is no evidence of settlement on the facility during these periods, camps may be likely to occur.

5.0 AN ASSESSMENT OF THE SIGNIFICANCE OF THE ARCHEOLOGICAL RESOURCE BASE ON THE RED RIVER ARMY DEPOT

Given the existence of potentially significant archeological resources on the Red River Army Depot, this section will discuss their inherent research values and potential significance in terms of eligibility for inclusion on the National Register of Historic Places. Classification of these known and potential resources, both prehistoric and historic, is presented in Table 5-1.

5.1 THE SIGNIFICANT RESOURCE BASE

5.1.1 Prehistoric Resources

One site containing a possible Paleo-Indian component has been reported for the adjacent Lone Star AAP. The site, located approximately 3000 feet northwest of storage area W and within an active landfill area, is on an upland ridge overlooking Caney Creek and consists of two "Plainview" projectile point fragments (U. S. Department of the Army 1979). The multiple artifact occurrence suggests that the site may consist of more than just an "isolated, spot find" and may contain undisturbed remains of early hunting activity, in which case the site would be significant. There are no presently known occurrences of Paleo-Indian artifacts on the Red River Army Depot. However, the Depot had similar physiographic situations as at the reported site on the Lone Star facility and it is possible that similar sites may be present on the Depot.

As pointed out by Story (1976), Archaic sites in northwest Texas have long been ignored in favor of the richer Caddoan sites of the region,

TABLE 5 1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence[a]			Sociocultural Association	Landform Association	Physical Integrity	Research Value[b]	RV CR[c]	Socio-cultural Value[d]	SCV CR[c]
			Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences							
Paleo Indian	Not defined	Not defined	0	0	+	Native American	Upland (dissected and rolling)	Poor	5	2	1	3
Archaic	Seasonal subsistence patterns	Habitation camp area; resource	0	0	++	Native American	Upland (dissected and rolling),	Fair to poor in uplands, good in floodplains	5	3	1	3
Transitional Fourche Maline	Incipient horticulture; hunting and gathering	Small upland resource specific camps; small to medium villages in lowlands	0	0	++	Native American	Uplands Floodplain	Fair to poor Good	5	4	1	3
Coles Creek Period	Incipient flint maize agriculture	Small villages and hamlets; camps	3	0	++	Native American	Usually riverine, occasionally uplands	Fair to good	5	4	1	3
Post-Archaic Caddo I-IV	Small game and wild plant procurement; agricultural	Permanent to semi-sedentary villages, hamlets/farmsteads; small resource specific camps	3	0	++	Native American	Settlement and cultivation in floodplain zones near permanent water; resource specific camps in all areas (uplands floodplain/floodplain margins)	Fair to poor in uplands, good in floodplains	3	4	1	3
Historic Indian Caddo V	Possibly related to trade with Europeans; continuation of small-scale agriculture and plant and animal procurement	Permanent to semi-sedentary villages; hamlets/farmsteads; small resource-specific camps	0	0	++	Native American	Settlement and cultivation in floodplain zones near permanent water; resource specific camps in all areas (uplands floodplain/floodplain margins)	Fair to poor in uplands, good in floodplains	5	4	1	3

Table 5 1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (concluded)

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence[a] Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences	Sociocultural Association	Landform Association	Physical Integrity	Research Value[b]	RV CR[c]	Socio cultural Value[d]	SCV CR[c]
Colonial Tradition (European and Mexican)	Religious; initial colonization and settlement	Isolated camps and small settlements/ outposts	0	0	++	Euro-american	Uplands	Fair to poor	4	3	2	3
American Settlement	Rural agricultural	Farmsteads, stores, schools, churches	199 structures 6 cemeteries	+	++	Euro-american	Uplands	Fair to poor	3	3	2	3

[a] The number of presently known or potential archeological resources of this type is specified here. In addition a judgement has been made as to the likelihood that other members of this resource occur within the facility, based on an analysis of the ethnohistoric or historic land use patterns and/or a review of the landform patterning of prehistoric materials. The probability of these additional occurrences has been noted as negative (-), positive (+), or highly positive (++).

[b] This is a subjective summary assessment of the overall research value (RV) of the resource class. It is an evaluation of the class' quality of preservation, representation of activity diversity or uniqueness, and temporal distinctiveness or reflection of diachronic relationships. It incorporates the need to avoid triviality, but to acquire what may be redundant data so as to discern patterns among those data. Based on these research values, the resource classes under discussion are ranked from 0 (no value) to 5 (highest value), including "NA" if such an evaluation is believed to be impossible given the available information.

[c] The Confidence Rating (CR) is a further evaluation of the perceived reliability of the research (RV) or sociocultural (SCV) values of the resource class. 1 = the judgement is more guess than science, and likely not to be reliable; 2 = the judgement is moderately reliable; 3 = the judgement is most likely reliable.

[d] This is a subjective summary assessment of the overall sociocultural value (SCV) of the resource class. It is an evaluation of the social, religious, or political importance of the resource to a contemporary community, from 0 (no value) to 5 (highest value).

resulting in a lacuna of knowledge for the Archaic Period in northeast Texas. As hunting and gathering efforts during this time were wide-ranging in extent and concentrated in all physiographic zones (uplands and lowlands), sites of this time are expected to be the most common prehistoric site type present on the facility. As Archaic sites have received relatively little attention in northeast Texas and are likely to yield regionally significant information regarding mobility and settlement patterns, subsistence scheduling and climatic adaptations to generally dryer conditions, they have been rated high in research value (Table 5-1).

Given the environmental constraints to site preservation outlined in Section 3.0, it is likely that buried, in situ Archaic sites exist in the floodplain of the larger perennial streams on the facility and would be considered significant. Although Archaic sites are also likely to occur in the uplands, it is felt that they will most likely exist in a relatively disturbed context there. However, although these upland Archaic sites may not demonstrate detailed stratified occupational sequences, they may yield information regarding settlement preferences and general subsistence practices and should be identified and documented through on-the-ground investigation. Only at this point can their National Register eligibility be reliably assessed.

Prehistoric Post-Archaic sites, including the Caddo I through Caddo IV periods (AD 800-1700), have generally been located along major streams in floodplain contexts and consist of semi-permanent to permanent settlements. With exception of five perennial streams on the facility, there are no year-round water supplies; thus permanent settlements (villages or hamlet farmsteads) are not anticipated for areas beyond the floodplain. It is very likely however, that seasonal, resource-specific (hunting, gathering, chert collecting) camps dating room these periods will exist on the facility uplands. Sites dating from the Fourche Maline culture have been located in all physiographic zones. Fourche Maline sites could occur on the facility and could be very significant primarily

for information they might yield regarding the stimulus to and nature of the transition between regional Archaic and Post-Archaic adaptations.

Three sites dating from the scientifically critical Coles Creek period are reported for the Depot (U. S. Department of the Army 1979) and it is likely that more will be present. Investigation of these could provide significant information regarding the nature and origin of the Coles Creek influence on local late Archaic and early Post-Archaic/Caddo I groups.

Sites containing "early Caddo" components are reported for the Depot, and it is highly likely that additional sites of the Caddo I through IV periods are present in both the uplands and the perennial floodplain zones. Many of these remains, particularly in upland areas, may be from resource areas and/or camp sites and lack diagnostic artifacts. Small sites such as those likely to be found on the facility uplands are rarely assignable to a specific phase or period because they often lack pottery and/or include dart points in the tool kit (indicating either Archaic or Post-Archaic temporal units). Sites within the lower floodplain elevations might be buried by colluvial slope wash and innundated by recent alluviation as well. Unlike the upland sites that have probably been disturbed to some degree, sites in the lower elevations may retain intact, stratified cultural deposits that would be significant.

Although much of the Post-Archaic assemblage might remain unidentifiable within specific temporal and/or cultural contexts, sites with ceramics should provide excellent opportunities for research and provide a significant resource base. The confidence level for definition and identification of Post-Archaic remains is much greater than for earlier components because of the greater data base and previous scientific attention. The potential for locating significant sites of the Post-Archaic time frame on the Red River Army Depot is considered of medium to high probability based on the observation that much of it lies in high potential areas for site preservation (i.e., alluvial

floodplains). These resources are likely to be buried and thus not identifiable through conventional survey techniques.

5.1.2 Historic Resources

During the Caddo V period, settlement was concentrated in the "big bend" area of the Red River, about 40 miles east of the facility along major water ways where contact (primarily for trading) was maintained with Europeans. La Harpe traversed the facility via the Caddo Trace in 1719 and, as it was reported to la Harpe that this route had been in use for some time, it seems likely that cultural material associated with the historic Caddo V period as well as the European exploratory period may be present on the facility, especially in areas adjacent to the Caddo Trace.

The identification of a Caddo V site with associated European trade items would be significant as it would indicate a deviation from the presently recognized settlement pattern. This would, therefore, afford the opportunity to address questions regarding the geographic range of these groups and associated subsistence practices in areas beyond the major waterway routes used by European traders and settlers. Sites of this time period are rare in northeast Texas and all should be considered potentially significant.

The Colonial Period in the facility vicinity witnessed fairly extensive travel through the area, particularly along the Red and Sulphur rivers. Thus, the possibility that the facility acreage was at least visited during this time is believed to be strong, although evidence of settlement or towns is thought unlikely to be presen.. Documented sites of the period are few and any found on the facility would be significant primarily due to their rarity. Further, they could provide archeological information regarding a relatively undocumented time frame, especially concerning the nature of the associated material culture. This could contribute greatly to our ability to recognize these early sites during future archeological investigations in northeast Texas.

The potential historic archeological resources on the Red River Army Depot all appear to date from the Settlement Period (post-AD 1836). These exhibit a typical rural settlement pattern: individual farmsteads at favored locations in the uplands with associated stores, schools and cemeteries. No churches have yet been identified. Six cemeteries are present and date from the mid-nineteenth century. Note that, of these, four bear the names of original land grantees within the facility acreage. There is no record of small towns or villages.

Based on early maps of the area, it has been determined that there were 197 structures, probably residences, on the facility property in 1904. It is very likely that many of these date back to the mid-1800's and represent the earliest documented settlement of the present facility acreage. All were situated on or near then-existing roads in the uplands.

Government Land Appraisal reports prepared during the course of facility real estate acquisition in 1940-1941 indicate at least 194 structures, including residences and outbuildings of various types, were standing on the property. Many of the early reports have since been destroyed. The total of 194 structures is based on surviving reports which cover about 30 percent of the total acreage and indicates that many additional buildings should be expected to occur.

All except one building present on Depot lands at acquisition were purchased by the government and destroyed where they stood, usually by fire (Sid Knight 1983: Personal communication). With the exception of those now-razed house sites (dating from 1904-1906 to 1940-1941) destroyed by facility construction, the remainder should be identifiable through on-the-ground investigation. At present, their archeological integrity is difficult to determine as none has been field-checked. The cemeteries are currently well kept by facility maintenance personnel.

The early homestead sites are potentially significant and may yield information regarding various aspects of domestic activity, early

agricultural technologies, and settlement preferences. Investigation of these could also provide valuable information regarding nineteenth and early twentieth century material culture. This would aid future researchers in the identification of such sites as belonging to this period. Schools, churches, and stores functioned as centers for social interaction and therefore their remains may provide some research data in that area.

5.2 IDEAL GOALS AND OBJECTIVES

Given the assumption that significant (and presently unidentified) archeological resources are located within the Red River Army Depot, the following is an outline of a desirable program to manage these resources for the best preservation or use of their research and sociocultural values. An ideal Depot archeological resource management program would encompass identification, evaluation, conservation, excavation and analysis, and interpretation activities. It would emphasize the conservation of significant resources, and their excavation or "use" only to mitigate any unavoidable destruction or damaging activities or in search of important information that is being collected and studied within a well designed research project. As presently evaluated, the Red River Army Depot's potential archeological resource base is likely to be of most value for its potential research rather than sociocultural contributions. Thus, this discussion of goals and objectives is focused on enhancing these potential research values through resource conservation or use.

The initial goal of any research project to be conducted on the Red River Army Depot is a site-specific evaluation of the research significance of each of the identified (and potential) historic and prehistoric sites. This review would also meet the need for evaluation of these resources to determine whether or not they are subject to management consideration under the National Historic Preservation Act and the Archeological and Historic Preservation Act (Section 1.1). The focus

of this review of archeological values should first address the archival and oral historical information about each identified site, to both (1) evaluate the historic significance of the site, and (2) make a judgement as to whether the archeological investigation of the site would yield important scientific information not already available in the historic record. If archival or oral historical information indicates that any site has the potential for yielding important and otherwise unavailable information, then subsurface test investigations of these sites probably will be necessary to confirm their contextual integrity and informational value. If after this work any resource is deemed of archeological research significance, its investigation should be guided by appropriate research designs and standards.

Archeological research, whether prehistoric or historic, is directed toward understanding the systems and processes by which human communities have adapted to and modified their human and natural environments over time. At issue are questions such as, "Where and why did people carry out particular activities over time," and "how and why did they do it?" Of particular significance for the Red River Army Depot area is the potential for clarifying the origins of Caddo culture, and whether it developed out of Fourche Maline or Coles Creek roots. Information important to answering such questions, particularly for the prehistoric Coles Creek and early Caddo period sites, could be preserved archeologically within the Red River Army Depot, and if present merits preservation and protection in place complemented by the wise withdrawal or use of such information through scientific inquiry. However, only when the significance of specific identified prehistoric or historic resources has been determined may it be appropriate to develop a detailed research design.

The second stage of the identification program would be the field inventory of the undisturbed portions of the Depot to identify the surface evidence of any other historic or prehistoric archeological sites. Such an identification project would include the pedestrian

survey of the Depot, with close-interval spacing of survey transects. Large-scale aerial photographs and detailed topographic maps should be used for field reference. Standard forms for recording the surface characteristics of identified prehistoric and historic resources shouldbe completed as part of the inventory procedures and the area and methods of the survey should be well documented. The preferred survey policy for most contemporary projects is to make only minimal collections of artifacts off of site surfaces, retaining only those that are diagnostic of particular styles and/or technologies or are immediately vulnerable to non-professional collection or damage. Any collected materials should be fully described and appropriately curated.

In addition to a description of the surface evidence of these sites, the ideal inventory would include some kinds of subsurface investigation (e.g., augering, test excavation, remote sensing) to evaluate the contents, extent, and integrity of the identified resources. Finally, this stage should include an identification of the important research or other values inherent in the inventoried sites, both as a basis for the development of future research designs as well as for the evaluation of management options should the resource be threatened with damage or destruction by non-archeological-research activities. For purposes of future research development, the identification and evaluation of the resources needs to be well documented and available to the research community. For future resource management purposes, it needs to be appropriately stated within the U. S. Department of the Interior's terminology and concepts of resource significance.

The prevailing professional approach to archeological resources for the past decade has been one of conservation (Lipe 1977:21)--"Our goal...is to see that archaeological resources everywhere are identified, protected, and managed for maximum longevity." Thus, the ideal objective is to develop a "bank" of significant sites that may be investigated through a variety of techniques, including destructive excavation, only as part of well-designed research projects that are scheduled within a

regional research program that seeks to maintain the overall range of undisturbed sites for future use. A corollary to this is that the sites should be allowed to be investigated by scientists in a non-reactive situation (i.e., not threatened with immediate destruction of the resource). Such basic investigation of resources on the public lands should be conducted only within research designs that are appropriate to the contemporary regional or broader study questions. It should also be conducted only within a program that includes long-term protection of the information collected from the resources, and a commitment to the public dissemination of that information.

If an archeological site evaluated as being of research or sociocultural significance is going to be damaged or destroyed, the ideal objective would be to preserve its included materials and information values through a data recovery program. Such a program would be little different from the non-reactive investigations discussed above, but is likely to be conducted in conjunction with facility developments. Again, an important element in such an emergency research program would be the adequate analysis, curation, and publication of the recovered information. In the event the installation has accomplished its 106 procedures and finds a previously unidentifiable resource during its ground disturbance and/or construction phase, it will effect compliance using 36 CFR 800.7 procedures.

Thus, in summary the ideal goals for the management of Red River Army Depot archeological resources are to:

- Inventory and evaluate all the resources on the facility
- Conserve the significant sites, allowing their research use only within a regional research design
- Recover the contents and information from any significant resources threatened by damage or destruction

- Provide the public with the substance of the information values that are inherent within or collected from the Depot's archeological resource base.

6.0 A RECOMMENDED ARCHEOLOGICAL MANAGEMENT PLAN FOR THE RED RIVER ARMY DEPOT

6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

Two classes of ground-disturbing activities are addressed here: on-going activities, including construction projects, and potential future undertakings. Information about on-going activities was gathered during the facility inspection and conversations with Mr. Bill Shope, Facilities Engineering Division. Potential areas of future construction were identified in the Expansion Capability Plan (Clifford S. Nakata and Associates, Inc. 1980). These are areas in which additional construction is feasible given present building locations and Quantity Safety Distance criteria. However, there are no expectations for expansion in these areas in the forseeable future (Bill Shope, personal communication 1983). Both on-going and potential construction areas are listed in Table 6-1 and mapped in Figure 6-1.

6.1.1 On-Going Disturbances

There are currently four on-going construction projects: a rubber products building, a maintenance modernization project, a boiler plant, and a missile production facility (Table 6-1). Landscaping on these projects has been completed or is nearing completion. Substantial ground disturbance has taken place in all these areas and basal (culturally sterile) clays are exposed on their surfaces. Therefore, cultural resource investigation is not appropriate at any of these four locations.

There is an on-going silvicultural program on the Red River Army Depot. The timbered acreage is divided into cutting units that are

Table 6 1. A SUMMARY OF ON GOING AND PLANNED ACTIVITIES ON THE RED RIVER ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES

Activities						Associated Resources				Impacts		
Description[a]	Date[b]	Area	Size (a.)	Estimated Depth Below Surface (ft.)[c]	Ratio of Disturbed to Total Area[d]	Resource Class[e]	Resources Known or Predicted[f]	NRHP Status[g]	Other Value[h]	Direct[i]	Indirect	Mitigation Options
Proposed												
PL-1. Supply facility	DU	H	60	3 5	10:10	Homesteads; pre historic camps/ hamlets	L+	INSF	Yes	Yes	--	Survey for presence
PL-2. Supply facility	DU	-	4.5	2 3	10:10	Homesteads; pre historic camps/ hamlets	P	No	Yes	No	-	None recommended
PL-3 Supply facility	DU		15	2 3	10:10	Homesteads; pre historic camps/ hamlets	P	No	Yes	No	-	None recommended
PL-4. Implemental land use area	DU	-	3.4	2-3	10:10	Homesteads; pre historic camps/ hamlets	P	No	Yes	No	--	None recommended
PL-5. Implemental land use area	DU		12.6	2-3	10:10	Homesteads; pre historic camps/ hamlets	P	No	Yes	No	--	None recommended

[a] All numbers preceded by "PL", indicating that these are planned activities. These are cross-referenced to Figure 6-1.

[b] DU = Date on start of project is uncertain.

[c] Depth estimates made based on relief of area. Elevations taken from USGS 15' quads.

[d] Not all the ground within the boundaries of an on-going or proposed activity area will necessarily be affected. This Ratio is an evaluation of the acres of surface projected to be disturbed within a proposed activity area in proportion to the overall size of the area itself.

[e] Resource class entries are those known to occur or having the potential to be present.

[f] This is an identification of the Known (K) or Potential (P) resources that are located within the proposed activity area, as well as the positive (+) chance that presently unknown resources are likely (L) to be found there.

[g] The following codes have been used to identify resource status in terms of the National Register of Historic Places (NRHP); PSS = Protected by state statutes but generally not considered eligible for the NRHP; INSF = insufficient information with which to make a judgement.

[h] It is felt that all early (1904 and earlier) homestead locations will be of value as regards local historic resources. Prehistoric sites, although maybe not eligible for NRHP, will be of scientific importance to the archeological/ethnographical community.

[i] Direct impacts are those whose ground disturbing activities will directly damage or destroy the identified resource.

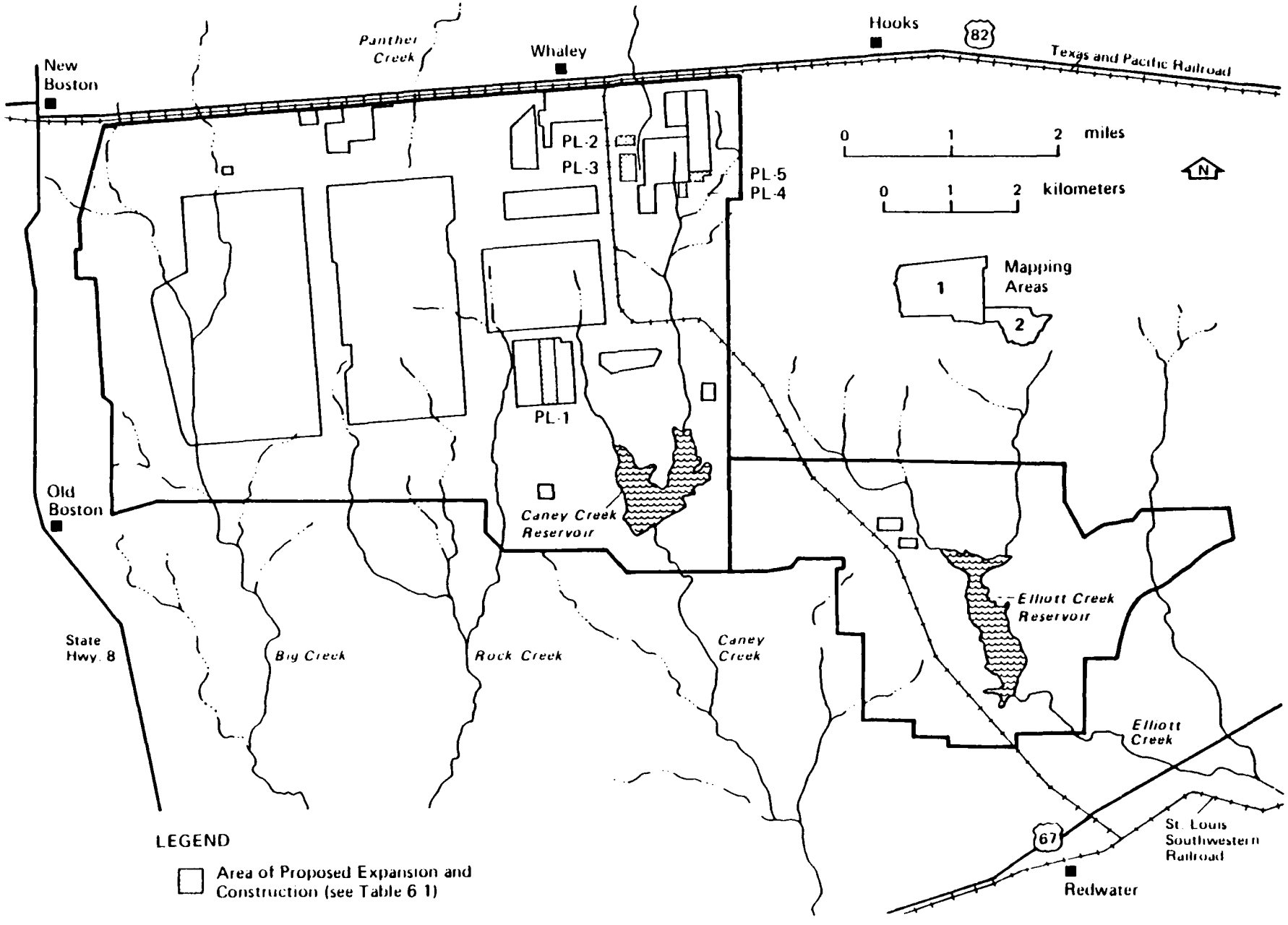

Figure 6 1. MAP OF POTENTIAL FUTURE EXPANSION ACTIVITY ON THE RED RIVER ARMY DEPOT

harvested on a rotating basis affecting each unit every seven to eight years. The program is administered by the U. S. Army Corps of Engineers, Fort Worth District. The sale of the timber is to private contractors on a highest-bidder basis. None of the Depot acreage has been leased for agricultural use, although between 1952 and 1963 approximately 11,000 acres were used for cattle grazing by a single (civilian) lessee. The leased acres were in the northwestern and southwestern portions of the facility.

6.1.2 Potential Future Undertakings

Five areas of potential Depot expansion have been identified (Table 6-1, Figure 6-1). As mentioned previously, construction in these areas is not anticipated in the forseeable future. However, ground-disturbing construction is planned for several supply facilities and new land use areas, and some Depot lands may soon be leased for oil and gas exploration.

No archeological resources are known to be in the impact area for the proposed construction of Supply Facility PL-1 (Table 6-1), but this area has not been professionally archeologically inventoried. This area is on a ridge close to a perennial tributary of Caney Creek, and is considered to have a high probability of containing either prehistoric or historic archeological materials. This area should be surveyed and evaluated prior to project implementation.

No archeological resources are known to be in the area of proposed Supply Facilities PL-2 and PL-3 (Table 6-1), nor have there been previous archeological surveys of these localities. However, both of them are adjacent to existing production buildings and railroad lines and appear to have been substantially disturbed by previous construction and landscaping. It is recommended that the areas are unlikely to retain significant archeological materials, and that no further preservation consideration needs to be given to these.

No archeological resources are known to be in the area of proposed construction of two Implemental Land Use Areas (PL-4, PL-5; Table 6-1), and these have not previously been archeologically surveyed. Both areas have been highly disturbed. Two railroad spurs traverse PL-5, and the PL-4 unit is bounded on the east and west by railroad lines. Thus, it is again recommended that these areas are unlikely to retain significant archeological materials, and that no further preservation consideration needs to be given to these localities.

Certain portions of the Depot, for which exact locations are presently unavailable, may soon be leased for oil and natural gas exploration and production. Potential lease areas must be located beyond the Public Traffic Route Distances (about 60 percent of the Inhabited Building Distance), which are determined on the basis of the type and nature of the explosive capacity of materials being stored or manufactured in any given production building. These leases are subject to review and endorsement of the exploration terms and criteria set forth in the "Report of Availability for Oil and Gas Leasing at Red River Army Depot" (U. S. Department of the Army 1984). Because of the location requirements for these leases they are likely to be in areas that are relatively undisturbed, hence could be in areas with a high potential for retaining significant archeological materials. Prior to any undertaking, the Red River Army Depot personnel should consult with the Texas SHPO on the appropriate actions to be accomplished to meet DARCOM compliance.

6.2 APPROPRIATE ARCHEOLOGICAL MANAGEMENT GOALS WITHIN THE RED RIVER ARMY DEPOT'S MASTER PLAN

6.2.1 General Facility Planning

Army Regulation AR 420-40, drafted pursuant to the National Historic Preservation Act and 36 CFR 800 (Section 1.1), require that each DARCOM installation have a Historic Preservation Plan or have documentation on

file indicating that there are no installation resources appropriate to such management planning. At present, there is no such negative declaration for the Red River Depot, while at least two archeological sites have been documented on the facility and a number of other potential sites have been identified there. Thus, this report is organized so as to provide a basis for such a Plan to be developed and implemented on the facility.

It should be noted that the Historic Preservation Plan should provide for the management of properties that reflect all facets of the National Historic Preservation Act program, including prehistoric and historic archeology, historic architecture and engineering, and historic landscapes or other more intangible elements of the traditional cultural record.

A review of the information provided in Section 3.0 indicates that of the Depot's 19,081 acres, only some 15 percent or 2800 acres of them have not been subject to extensive disturbance within the past 40 years. These relatively undisturbed lands on the facility are believed to retain the potential for containing significant archeological materials and to merit archeological field inventory and evaluation.

The Department of the Army Regulation AR 420-40 prescribes Army policy procedures and responsibilities for compliance with the National Historic Preservation Act of 1966, as amended; for the maintenance of state-of-the-art standards for preservation, personnel, and projects; and for accomplishment of the historic preservation program. The Historic Preservation Plan has the following objectives:

- Provision of historic and archeological data for the installation's information systems

- Prioritization of activities for acquiring additional information to determine if there may be additional properties not yet located or identified

- Establishment of a procedure for the evaluation of historic properties

- Provision of guidelines for the management of historic properties

- Implementation of a legally acceptable compliance procedure with the Advisory Council for Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO) (Figure 6-2)

- Integration of historic preservation requirements with the planning and execution of military undertakings such as training, construction, and real property or land use decisions

- Ranking of facility projects by their potential to damage historic properties

- Identification of funding, staffing and milestones needed to implement the plan.

The identification and evaluation of historic and prehistoric resources on the Depot has been initiated by the completion of this overview and plan (as well as the previous identification of two sites). This needs to be followed by a full identification and evaluation program of undisturbed lands as outlined in Section 5.2: more extensive oral and archival historic review; field surface and subsurface inventory of all undisturbed lands; and evaluations of resource significance in terms of U. S. Department of the Interior criteria. Some or all of this recommended work could be postponed until there is a specific ground-disturbing project that requires compliance with the National Historic Preservation Act (see Sections 1.1, 6.2.2), if development of a historic preservation plan more specific than this document is also to be postponed and if such scheduling has been accepted by the Texas State Historic Preservation Office (SHPO).

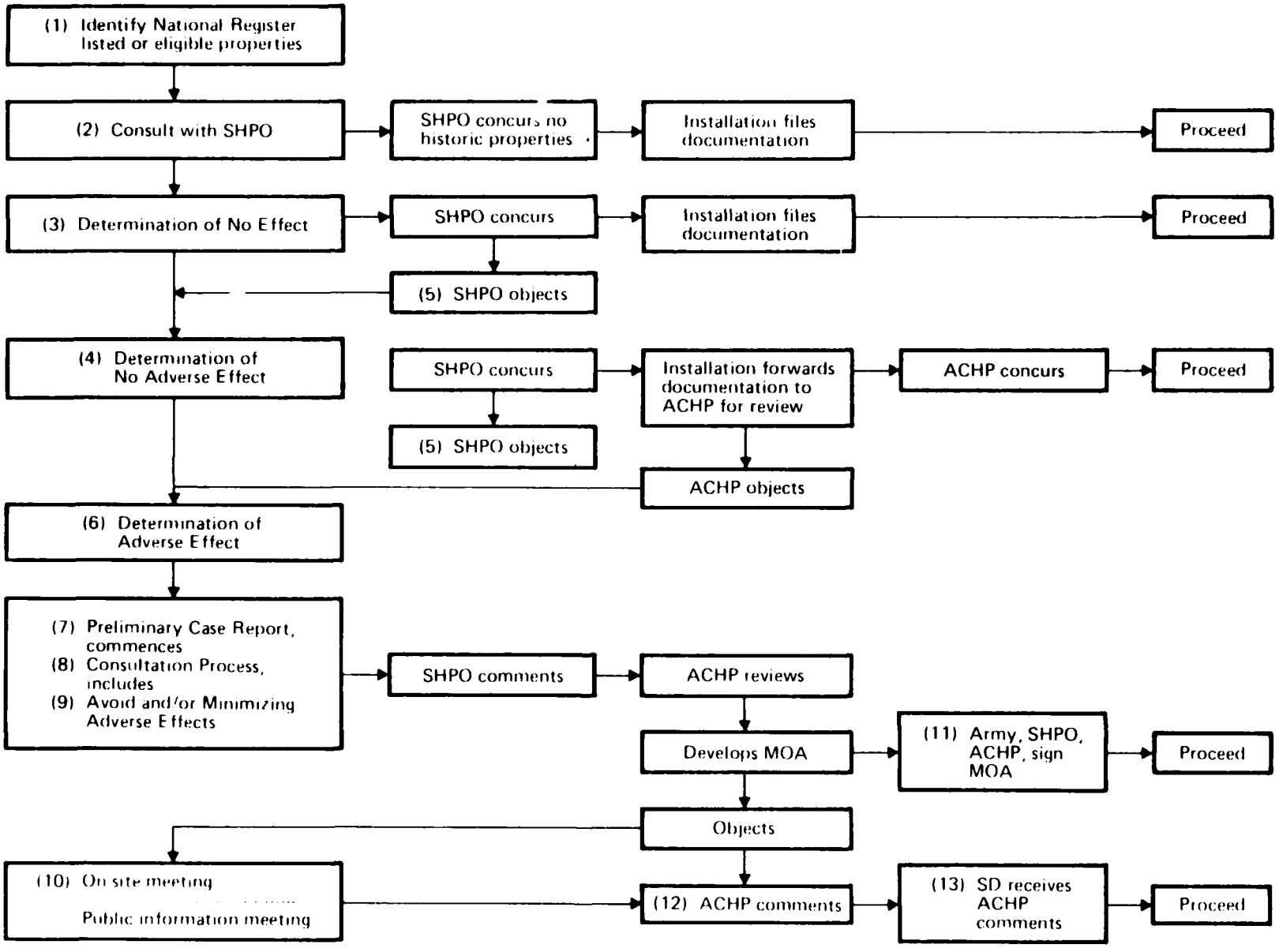

Figure 6-2. PROCEDURE FOR COMPLIANCE WITH REGULATIONS OF THE ADVISORY COUNCIL, IN ACCORDANCE WITH 36 CFR 800

Under any schedule, until the determination has been made that identified prehistoric or historic sites are not significant they must be managed as if they were, for compliance with Section 110(a)(2) of the National Historic Preservation Act:

> (2) With the advice of the Secretary [of the Interior] and in cooperation with the State Historic Preservation Officer for the State involved, each Federal agency shall establish a program to locate, inventory, and nominate to the Secretary all properties under the agency's ownership or control by the agency, that appear to qualify for inclusion on the National Register in accordance with the regulations promulgated under section 101(a)(2)(A). Each Federal agency shall exercise caution to assure than any such property that might qualify for inclusion is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly [underlining added].

As outlined in the previous discussion of ideal archeological management goals (Section 5.2), a recommended next stage in the assessment of the importance of the facility's historic archeological resources is a more intensive review of archival material and evaluation of regional historic research objectives. The archival review might focus on information stored in the National Archives and Records Service (Record Group 156, Records of the Office of the Chief of Ordnance; Record Group 338, Records of the U. S. Army Commands), as well as interviews of pre-1940s residents of depot lands. This review and evaluation should include consultation with the Texas SHPO to identify and prioritize regional historic research questions to which the historic archeological information from identified sites might contribute. The goal of this research would be to define the historic significance that any of the identified sites might have if they had contextual integrity and were to be archeologically investigated.

As discussed in Section 5.2 and required by the National Historic Preservation Act (NHPA), the next step in the identification stage of archeological resource management should be field investigation to locate sites and determine their boundaries, contents, and integrity. NHPA Section 110(a)(2) requires that all federally owned or controlled lands

be surveyed to identify all significant archeological properties on them. A strict adherence to this would support the immediate intensive archeological inventory of all Red River Depot lands not previously surveyed or not clearly documented as having deep and extensive modern ground disturbance. Some 5600 acres are identified in Table 3-1 as having extensive modern ground disturbance, though some of these (e.g., Ground Disturbance Area 13) are igloo storage areas that may have relatively undisturbed deposits between the structures. The 11,000 acres of land now subject to silviculture may or may not also have intact deposits. Until there is field review of much of these lands or a physiographic sample of them, their modern depositional integrity and archeological potential cannot be written off.

The current prevailing federal policy about implementation of the federal comprehensive inventory requirement is that it should be a "reasonable" program consistent with the overall schedules, budget, and multiple objectives of the land-managing agency. Given (1) the apparent lack of deep ground disturbance on some of the Depot lands within the past 40 years, (2) the continuing silviculture program, (3) the probability that there will be oil and gas leases on the Depot in the near future, and (4) the likelihood that there are significant prehistoric and historic archeological materials on the facility, it is recommended that it would be most cost-effective to complete an archeological inventory of a sample of the Depot lands as soon as it is fiscally possible.

A recommended survey program would address both the potential historic sites identified archivally, and the possible prehistoric sites whose locations are more frequently differentially distributed across the facility landforms. The identified potential historic resources should be field checked. In complement, the field survey (referred to here as Phase I) should include intensive coverage of a sample of the relatively undisturbed lands that might still contain intact sites. A 15 percent sample of facility landforms, arrayed in 12 quarter-mile-wide transects

as illustrated in Figure 6.3, is recommended as an adequate first assessment of Depot archeological resources. These transects have been located so that they:

- Are easily defined and recognized on the ground and begin, end, or parallel existing features (e.g., fences, roads, railroads)
- Cross-cut all major facility physiographic zones
- Traverse areas of known 1904-1906 homestead locations in order to investigate the latter
- Sample areas of proposed future expansion (Table 6-1)
- Sample existing Ground Disturbance Areas (Table 3-1) whose previous ground-disturbance intensities are not yet field-evaluated.

Phase I field reconnaissance should include some limited subsurface investigations, such as augering or shovel tests, to attempt to evaluate the integrity and depth of any identified sites. However, evaluations of site significance may require Phase II limited test excavations. The amount of work required during these tests cannot be addressed realistically until completion of Phase I, although usually the significance of a site can be determined on the basis of 3-5 days of fieldwork by a three person field crew and subsequent description, analysis, and reporting.

Based on the historic and field inventory and perhaps test data, the significance of all identified sites should be evaluated following criteria set forth in 36 CFR 60.6 and in accordance with guidelines from the Texas SHPO. If sites are judged to be significant, a plan for their long-term management should be developed in the context of overall property management (including the management of any identified

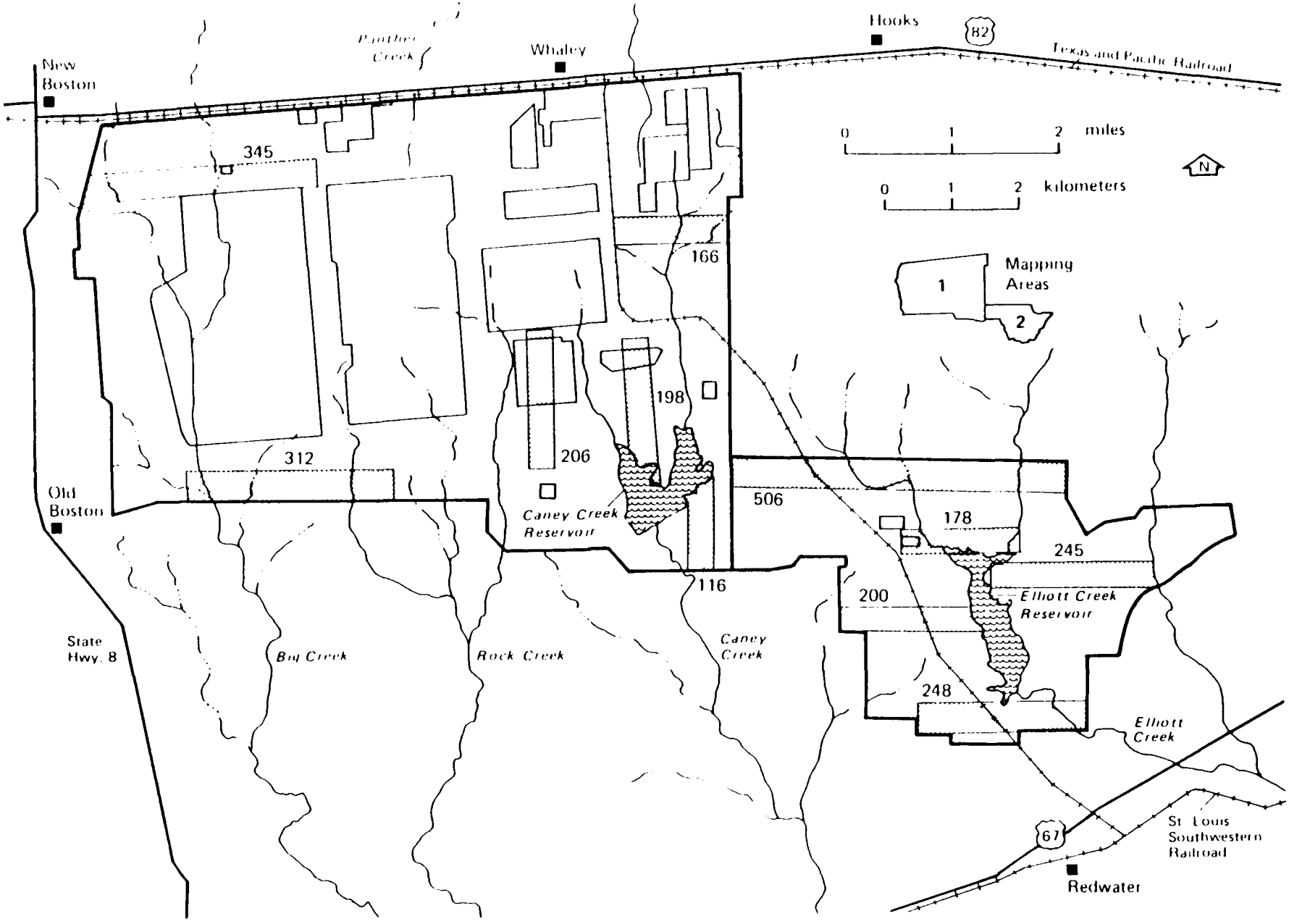

Figure 6 3. PROPOSED TRANSECT LOCATIONS FOR THE FIFTEEN PERCENT SAMPLE SURVEY, INCLUDING TRANSECT ACREAGES, FOR THE RED RIVER ARMY DEPOT

ethnohistoric or historic architectural/engineering resources). Such management activities might include resource conservation in place, biannual field review of site condition, public interpretation of resource values, scientific investigation of the sites, and/or planned site destruction by military activities. If significant sites are identified, it is recommended that the DARCOM officer responsible for the Red River Army Depot (or the appropriate contract manager for the facility) provide the Texas SHPO with the opportunity to review and comment on the proposed management plan. If the evaluation is made that none of the sites on the Depot is significant, filing of a report to that effect with the SHPO would complete the facility's compliance requirements for preservation planning.

6.2.2 Project-specific Resource Protection or Treatment Options

As outlined in Section 6.2.1, at least four new construction projects are in process or nearly complete (including all ground-disturbing activities) on the Red River Army Depot. There is no record of pre-construction archeological inventory of these new construction sites, or of pre-construction consultation about these undertakings with the Texas State Historic Preservation Office. Any ground-disturbing construction on, or leasing of, Depot land is a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (see Section 1.1 of this report). Section 106 requires that DARCOM consult with the Texas SHPO and the Advisory Council on Historic Preservation about the affects of such an undertaking on significant archeological sites. Without a SHPO-accepted facility preservation plan, it is DARCOM's responsibility to either complete such an evaluation and consultation program for each new undertaking or to have on file documentation of the completion of adequate survey and evaluation so as to confirm the absence of or lack of significance of any archeological site that might be affected by the proposed activity. Even if late in the on-going construction projects, it is appropriate for compliance purposes for DARCOM to initiate consultation with the SHPO about these projects and have documentation of such consultation on file.

The Depot silviculture program is also a federal undertaking that should be managed in consultation with the SHPO.

Since the portions of the Depot that are relatively undisturbed or in silviculture have not been subjected to intensive archeological survey, construction in currently unsurveyed areas could impact archeological resources. Consequently, if such impacts were planned, survey, evaluation, and perhaps required mitigative data recovery (scientific archeological investigation of a significant site) could be necessary on a project-specific basis prior to initiating the ground-disturbing activity. Such evaluation and preservation programs require consultation with several federal agencies, and are frequently time-consuming and have the potential for causing construction delays. However, such a project-specific program can usually be expedited if the appropriate preservation plan has been completed and reviewed by the State Historic Preservation Officer.

If it is found during the design stage of a project that an archeological resource is endangered, several options exist. First, it is sometimes possible to relocate the project slightly to avoid damaging the site. From a resource protection standpoint, this may be the best resolution of potential threats to the archeological data base. The alternative is to evaluate and treat the archeological resource as outlined in Section 6.2.1 above. This is most easily done when the evaluation of resource significance and appropriate treatment can be made within the context of a facility Historic Preservation Plan.

6.2.3 Summary of Recommended Management Directions and Priorities for Effective Compliance and Program Development

Based on the fact that there are undisturbed lands on the Red River Army Depot that may retain significant prehistoric or historic archeological sites, and that there is an on-going silviculture program

there as well as present and likely future ground-disturbing construction, Section 6.2 has outlined some short- and long-term management directions for the Depot. These include, in order of their recommended priority from first to last:

- Consultation with the Texas SHPO about this set of recommendations, and the on-going construction and silvicultural program, with agreement as to a scheduled compliance program for the Depot

- Professional field inventory and evaluation of the prehistoric and historic archeological resources within a sample of facility lands, for the development of a more reliable ground-truthed model of overall facility resources

- Integration of historic architectural and archeological data and management needs into a facility Historic Preservation Plan, if the activities listed above indicate that there are resources on the Depot that require long-term management.

6.3 ESTIMATED SCOPE OF WORK AND COST LEVELS FOR PRESENTLY IDENTIFIABLE MANAGEMENT NEEDS

This section provides a scope of work and milestones for a recommended inventory and evaluation of archeological resources on a 15 percent sample of facility lands; the long-term goal of SHPO consultation and the development of a Historic Preservation Plan is not costed out.

The sample survey described in Section 6.2.2 would cover 2862 acres in transects illustrated in Figure 6.2. When such survey includes a major effort in the field to complete preliminary evaluations of site horizontal and vertical distribution and characteristics (through augering, shovel-turns, but not formal testing), a regional survey rate of 40 acres/person-day is appropriate. Thus, the sample is estimated to

require 72 person-days (576 work-hours) of field time. A comparable amount of time is estimated to be required for the preparation of clean resource records and a report of findings, appropriate for evaluation by the Texas SHPO and the Advisory Council on Historic Preservation in compliance with Section 106 of the National Historic Preservation Act. Nationally, FY84 labor costs for these activities average $20-$25/work-hour as an unloaded cost including travel, supplies, and report preparation, expenses but without general and administrative costs, benefits, fees, or inflation allowances. Thus, this field and office activity is estimated to require between $23,040 and $28,800 in unloaded costs. Less time could be required if few sites were found and as a result there was less time involved in both field and writing work.

It is likely that some sites identified during the archeological inventory will have surface indications that they are significant resources, but that those indications will not be adequate for a formal determination of their significance. These will require professional archeological test excavation to collect information on which to base that determination, which is a necessary element in the overall resource management decision-making process. Such test excavations are estimated here to require an average of 14 work-days of field effort and 20 work-days of laboratory time, at an unloaded cost of $20-$25/work-hour. Thus, their unit cost is estimated to range between $5440 and $6800 in unloaded FY84 dollars (under assumptions as stated above). It is likely that five to ten archeological sites identified during the Phase I survey of the Depot will merit such intensive professional evaluations.

Professional expertise beyond that required for the Phase I survey and subsequent archeological testing program is likely to be needed for the long-term design and implementation of a Depot Historic Preservation Plan. The scope of such planning effort is dependent upon the results of field inventories of Depot lands, and requires expertise in preservation regulatory requirements and both archeology and historic architecture. The scope and cost of that later effort is not outlined here because of its dependent nature.

7.0
SUMMARY

The Red River Army Depot, comprising 19,081 acres, is located in Bowie County approximately 15 miles west of Texarkana in northeast Texas. Interpretations regarding the facility's potential to contain cultural resources and related cultural resources management needs have been formulated based on a surface tour of the facility acreage; aerial photographs of impacted surfaces; detailed topographic maps prepared at the time of land acquisition; post-acquisition construction maps; environmental and physiographic sources detailing soils, geology, flora, and fauna; previous archeological studies; and recognized prehistoric and historic land use and settlement patterns in the region.

Based on the above, it was determined that there are two recorded prehistoric sites and 239 potential historic sites within the Depot boundaries, that Depot land surfaces at the facility could contain cultural remains dating from the Paleo-Indian period, and further that these land surfaces have a high potential for the occurrence of other more recent prehistoric cultural remains. Archival research indicates that it is likely that there are further historic remains there as well. Limiting factors to site preservation in the uplands include the absence of a depositional environment combined with erosion/deflation and such modern land use practices as timber removal, plowing, and facility construction.

Compliance with the National Historic Preservation Act, the Archeological and Historic Preservation Act, 36 CFR 800, and Army Regulation AR 420-40 requires the identification, evaluation, and where

feasible, affirmative management of significant prehistoric and historic archeological resources. These also require that federal undertakings (e.g., new construction, new leases, or lease renewals of public lands) take into consideration the effects of the proposed activities on significant archeological materials.

For the Red River Army Depot's on-going silvicultural program, proposed future oil and gas leasing, and facility expansion to be in compliance with the National Historic Preservation Act and related regulations, the following management directions are recommended: consultation with the Texas SHPO, with agreement as to a scheduled compliance program for the facility; professional field inventory and evaluation of the prehistoric and historic archeological resources within a 15 percent sample of facility lands to develop a more reliable model of the overall Depot resources; and the integration of historic architectural and archeological data and management needs into a facility Historic Preservation Plan, if the previously proposed activities indicate that resources exist on the Depot which will require long-term management.

Cost levels for the above-recommended management activities have been computed as follows. The 15 percent sample field survey and associated report preparation is estimated to require between $23,040 and $28,800 in FY84 dollars. Test investigations of sites identified during survey have been estimated at a unit cost of between $5440 and $6800 in unloaded FY84 dollars. These figures represent an idealized approach; however, fiscal constraints may require DARCOM to accomplish its goals on a project-by-project basis.

These recommendations should aid in bringing the Red River Army Depot into a position of positive federal compliance.

8.0
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Appendix A

RESOURCE LOCATIONAL DATA

Table A-1. LOCATIONAL DATA, KNOWN ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

Site Number[a]	UTM[b] Northing	Easting	Ref.	Legal Reference[c] Township	Range	Section	USGS Quad Map[d]	CR[e]
KNOWN RESOURCES								
41BW175	3695740	385080	EHA	--	--	--	T154U	3
41BW176	3696100	385570	EHA	--	--	--	T154U	3

[a] Known resource locations are mapped in Figure A-1.

[b] UTM = Universal Transverse Mercator coordinates, Zone 15. If the area is less than 10 acres in extent, the coordinates record the approximate center of the site. If it is larger, they record the corners of a 3-or-more sided figure than encloses the site. The individual or institution that computed the UTM coordinates, listed here as "Ref.," include Espey, Huston and Associates (EHA).

[c] Township/range/section not applicable in this part of Texas.

[d] T154U = USGS Texarkana, TX-AR, 15 min. sheet (1954).

[e] The Confidence Rating (CR) is an evaluation of the perceived reliability of the site locational data. 1 = the information is more guess than science; 2 = the judgement is moderately reliable; 3 = the information is most likely reliable.

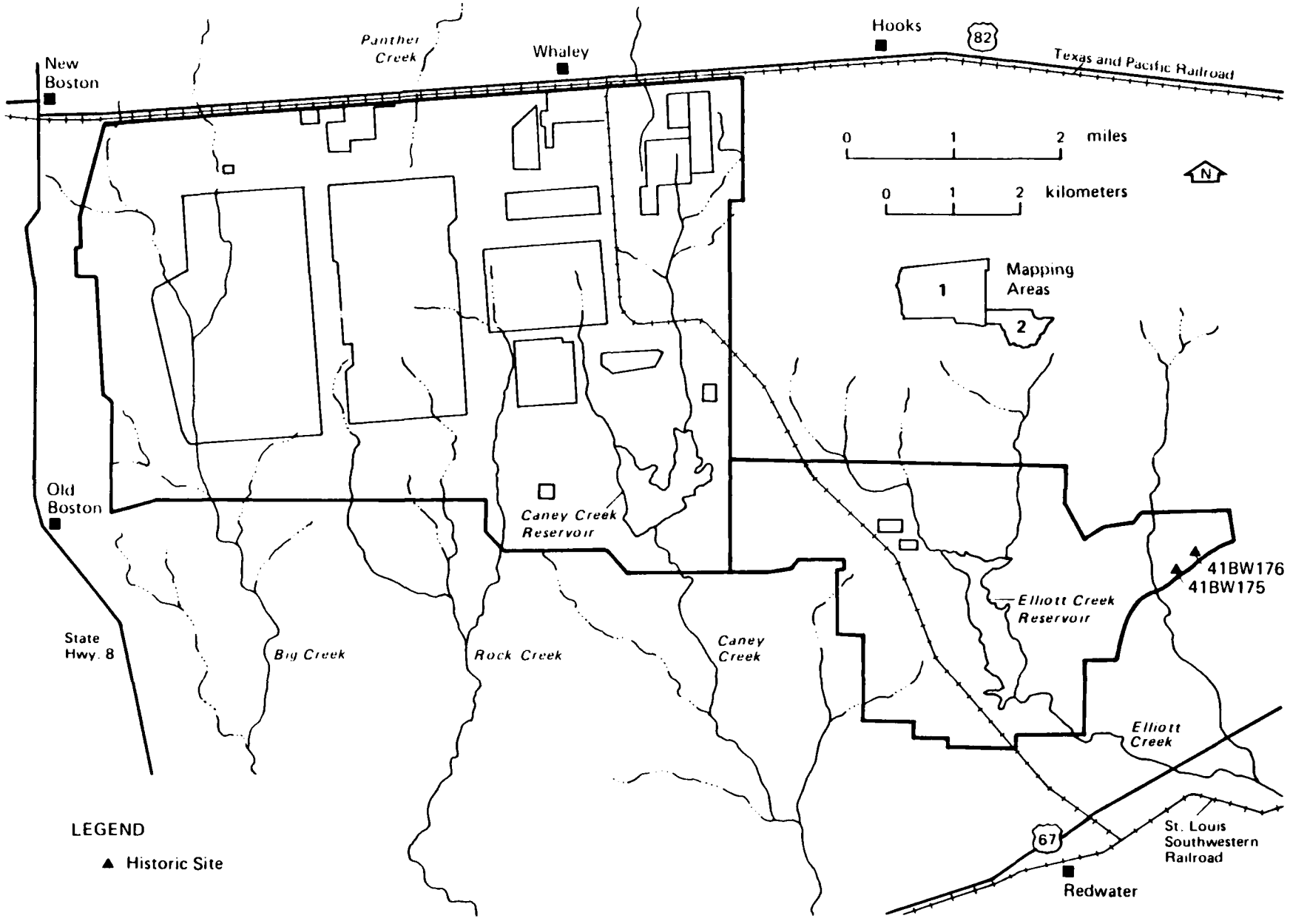

Figure A-1. MAP OF KNOWN ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (see Table A-1)

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
POTENTIAL RESOURCES								
1			HPG		--	--	N155U	3
2			HPG		--	--	N155U	3
3			HPG		--	--	N155U	3
4			HPG		--	--	N155U	3
5			HPG		--	--	N155U	3
6			HPG		--	--	N155U	3
7			HPG		--	--	N155U	3
8			HPG		--	--	N155U	3
9			HPG		--	--	N155U	3
10			HPG		--	--	N155U	3
11			HPG		--	--	N155U	3
12			HPG		--	--	N155U	3
13			HPG		--	--	N155U	3
14			HPG		--	--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
15			HPG	--	--	--	N155U	3
16			HPG	--	--	--	N155U	3
17			HPG	--	--	--	N155U	3
18			HPG	--	--	--	N155U	3
19			HPG	--	--	--	N155U	3
20			HPG	--	--	--	N155U	3
21			HPG	--	--	--	N155U	3
22			HPG	--	--	--	N155U	3
23			HPG	--	--	--	N155U	3
24			HPG	--	--	--	N155U	3
25			HPG	--	--	--	N155U	3
26			HPG	--	--	--	N155U	3
27			HPG	--	--	--	N155U	3
28			HPG	--	--	--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
29			HPG	--	--	--	N155U	3
30			HPG	--	--	--	N155U	3
31			HPG	--	--	--	N155U	3
32			HPG		--	--	N155U	3
33			HPG	-	--	--	N155U	3
34			HPG		--	--	N155U	3
35			HPG	--	--	--	N155U	3
36			HPG	-	--	--	N155U	3
37			HPG		--	--	N155U	3
38			HPG		--	--	N155U	3
39			HPG		--	--	N155U	3
40			HPG		--	--	N155U	3
41			HPG		--	--	N155U	3
42			HPG	-		--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
43			HPG			--	N155U	3
44			HPG			--	N155U	3
45			HPG			--	N155U	3
46			HPG			--	N155U	3
47			HPG			--	N155U	3
48			HPG			--	N155U	3
49			HPG			--	N155U	3
50			HPG			--	N155U	3
51			HPG			--	N155U	3
52			HPG			--	N155U	3
53			HPG			--	N155U	3
54			HPG			--	N155U	3
55			HPG			--	N155U	3
56			HPG			--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
57			HPG	--	--	--	N155U	3
58			HPG	--	--	--	N155U	3
59			HPG	--	--	--	N155U	3
60			HPG	--	--	--	N155U	3
61			HPG	--	--	--	N155U	3
62			HPG	--	--	--	N155U	3
63			HPG	--	--	--	N155U	3
64			HPG	--	--	--	N155U	3
65			HPG	--	--	--	N155U	3
66			HPG	--	--	--	N155U	3
67			HPG	--	--	--	N155U	3
68			HPG	--	--	--	N155U	3
69			HPG	--	--	--	N155U	3
70			HPG	--	--	--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
71			HPG	--	--	--	N155U	3
72			HPG	--	--	--	N155U	3
73			HPG	--	--	--	N155U	3
74			HPG	--	--	--	N155U	3
75			HPG	--	--	--	N155U	3
76			HPG	--	--	--	N155U	3
77			HPG	--	--	--	N155U	3
78			HPG	--	--	--	N155U	3
79			HPG	--	--	--	N155U	3
80			HPG	--	--	--	N155U	3
81			HPG	--	--	--	N155U	3
82			HPG	--	--	--	N155U	3
83			HPG	--	--	--	N155U	3
84			HPG	--	--	--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
85			HPG			--	N155U	3
86			HPG			--	N155U	3
87			HPG			--	N155U	3
88			HPG			--	N155U	3
89			HPG			--	N155U	3
90			HPG			--	N155U	3
91			HPG			--	N155U	3
92			HPG			--	N155U	3
93			HPG			--	N155U	3
94			HPG			--	N155U	3
95			HPG			--	N155U	3
96			HPG			--	N155U	3
97			HPG			--	N155U	3
98			HPG			--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
99			HPG			--	N155U	3
100			HPG			--	N155U	3
101			HPG			--	N155U	3
102			HPG			--	N155U	3
103			HPG			--	N155U	3
104			HPG			--	N155U	3
105			HPG			--	N155U	3
106			HPG			--	N155U	3
107			HPG			--	N155U	3
108			HPG			--	N155U	3
109			HPG			-	N155U	3
110			HPG			--	N155U	3
111			HPG			-	N155U	3
112			HPG			--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
113			HPG	--	--	--	N155U	3
114			HPG	--	--	--	N155U	3
115			HPG	--	--	--	N155U	3
116			HPG	--	--	--	N155U	3
117			HPG	--	--	--	N155U	3
118			HPG	--	--	--	N155U	3
119			HPG	--	--	--	N155U	3
120			HPG	--	--	--	N155U	3
121			HPG	--	--	--	N155U	3
122			HPG	--		--	N155U	3
123			HPG	--		--	N155U	3
124			HPG			--	N155U	3
125			HPG	--	--	--	N155U	3
126			HPG	--	--	--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
127			HPG			--	N155U	3
128			HPG			--	N155U	3
129			HPG			--	N155U	3
130			HPG			--	N155U	3
131			HPG			--	N155U	3
132			HPG			--	N155U	3
133			HPG			--	N155U	3
134			HPG			--	N155U	3
135			HPG			--	N155U	3
136			HPG			--	N155U	3
137			HPG			--	N155U	3
138			HPG			--	N155U	3
139			HPG			--	N155U	3
140			HPG			--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
141			HPG	--	-	--	N155U	3
142			HPG	-	-	--	N155U	3
143			HPG	-		--	N155U	3
144			HPG		-	--	N155U	3
145			HPG	--	-	--	N155U	3
146			HPG	-		--	N155U	3
147			HPG	-	-	--	N155U	3
148			HPG	-		--	N155U	3
149			HPG	-	-	--	N155U	3
150			HPG	-		--	N155U	3
151			HPG	-	-	--	N155U	3
152			HPG	-	-	--	N155U	3
153			HPG	-	-	--	N155U	3
154			HPG		-	--	N155U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
155			HPG	--	-	--	T154U	3
156			HPG	-	-	--	T154U	3
157			HPG	--	-	--	T154U	3
158			HPG	-	-	--	T154U	3
159			HPG	-	-	--	T154U	3
160			HPG	-	-	--	T154U	3
161			HPG	--	-	--	T154U	3
162			HPG	-	-	--	T154U	3
163			HPG	-	-	--	T154U	3
164			HPG	-	-	--	T154U	3
165			HPG	-	-	--	T154U	3
166			HPG	-	-	--	T154U	3
167			HPG	-	-	--	T154U	3
168			HPG	-	-	--	T154U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
169			HPG	--	-	--	T154U	3
170			HPG	-		--	T154U	3
171			HPG	- -	-	--	T154U	3
172			HPG	-	- -	--	T154U	3
173			HPG	- -	-	--	T154U	3
174			HPG		- -	--	T154U	3
175			HPG	- -	-	--	T154U	3
176			HPG	-	- -	--	T154U	3
177			HPG	-	-	--	T154U	3
178			HPG	-		--	T154U	3
169			HPG	-		--	T154U	3
180			HPG	-		--	T154U	3
191			HPG	- -	-	--	T154U	3
192			HPG	-	-	--	T154U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
193			HPG			--	T154U	3
194			HPG			--	T154U	3
195			HPG			--	T154U	3
196			HPG			--	T154U	3
197			HPG			--	T154U	3
198			HPG			--	T154U	3
199			HPG			--	T154U	3
200			HPG			--	T154U	3
201			HPG			--	T154U	3
202			HPG			--	T154U	3
203			HPG			--	T154U	3
204			HPG			--	T154U	3
205			HPG			--	T154U	3
206			HPG			--	T154U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
207			HPG	-	-	--	T154U	3
208			HPG	-	-	--	T154U	3
209			HPG	-	-	--	T154U	3
210			HPG	-	-	--	T154U	3
211			HPG	--	-	--	T154U	3
212			HPG	-	-	--	T154U	3
213			HPG	-	-	--	T154U	3
214			HPG	-	-	--	T154U	3
215			HPG	--	-	--	T154U	3
216			HPG	-		--	T154U	3
217			HPG	-	-	--	T154U	3
218			HPG	-	-	--	T154U	3
219			HPG	-	-	--	T154U	3
220			HPG	-	-	--	T154U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Continued)

Site Number[a]	UTM[b]			Legal Reference[c]			USGS Quad Map[d]	CR[e]
	Northing	Easting	Ref.	Township	Range	Section		
221			HPG	--	-	--	T154U	3
222			HPG	- -	- -	--	T154U	3
223			HPG	- -	-	--	T154U	3
224			HPG	-	- -	--	T154U	3
225			HPG	- -	-	--	T154U	3
226			HPG	- -	- -	--	T154U	3
227			HPG	- -	-	--	T154U	3
228			HPG	-	- -	--	T154U	3
229			HPG	- -	-	--	T154U	3
230			HPG	- -	- -	--	T154U	3
231			HPG	- -	-	--	T154U	3
232			HPG	-	- -	--	T154U	3
233			HPG	-	-	--	T154U	3
234			HPG			- -	T154U	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE RED RIVER ARMY DEPOT (Concluded)

Site Number[a]	UTM[b] Northing	UTM[b] Easting	UTM[b] Ref.	Legal Reference[c] Township	Legal Reference[c] Range	Legal Reference[c] Section	USGS Quad Map[d]	CR[e]
235			HPG	--	-	--	T154U	3
236			HPG	-	-	--	T154U	3
237			HPG	-	-	--	T154U	3
238			HPG	-	-	--	T154U	3
239			HPG	--	-	--	T154U	3

[a] Potential resource locations are mapped in Figure A-2 and A-3.

[b] UTM = Universal Transverse Mercator coordinates, Zone 15. If the area is less than 10 acres in extent, the coordinates record the approximate center of the site. If it is larger, they record the corners of a 3-or-more sided figure than encloses the site. The individual or institition that computed the UTM coordinates, listed here as "Ref.," include Heartfield, Price, and Greene (HPG).

[c] Township/range/section not applicable in this part of Texas.

[d] N155U = USGS New Boston, TX, 15 min. sheet (1955; 1 inch = 1 mile); T154U = USGS Texarkana, TX-AR, 15 min. sheet (1904-1906).

[e] The Confidence Rating (CR) is an evaluation of the perceived reliability of the site locational data. 1 = the information is more guess than science; 2 = the judgement is moderately reliable; 3 = the information is most likely reliable.

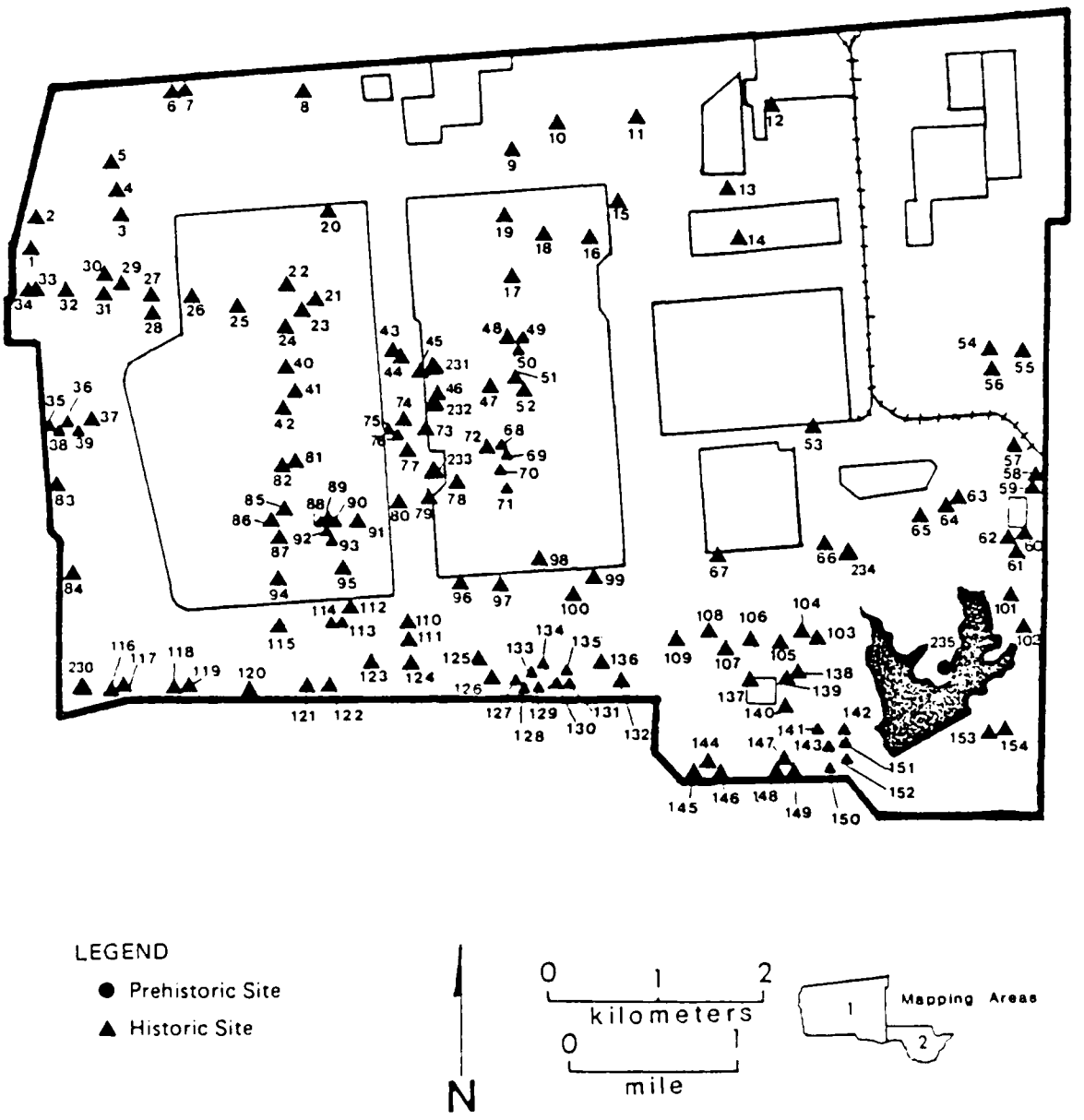

Figure A-2. MAP OF POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED SITES ON THE RED RIVER ARMY DEPOT, MAPPING AREA 1 (See Table A-2)

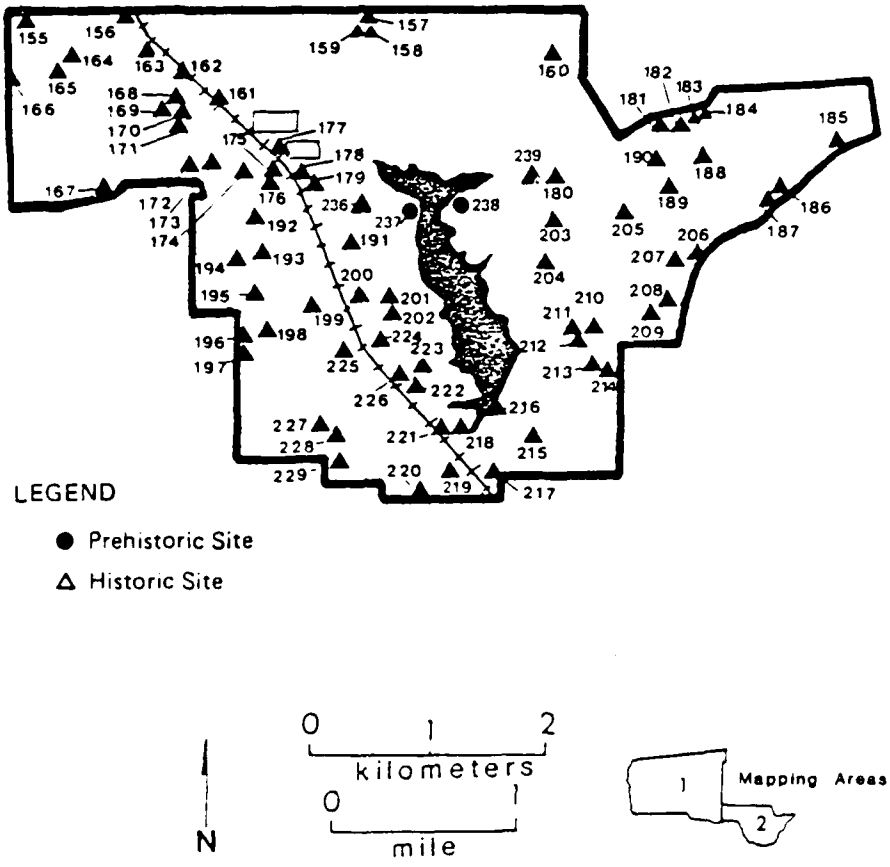

Figure A-3. MAP OF POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED SITES ON THE RED RIVER ARMY DEPOT, MAPPING AREA 2 (See Table A-2)

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